United States Department of Agriculture

Soil Conservation Service

In cooperation with United States Department of the Interior, Bureau of Land Management, and Utah Agricultural Experiment Station

Soil Survey of San Juan County, Utah, Central Part

How To Use This Soil Survey

General Soil Map

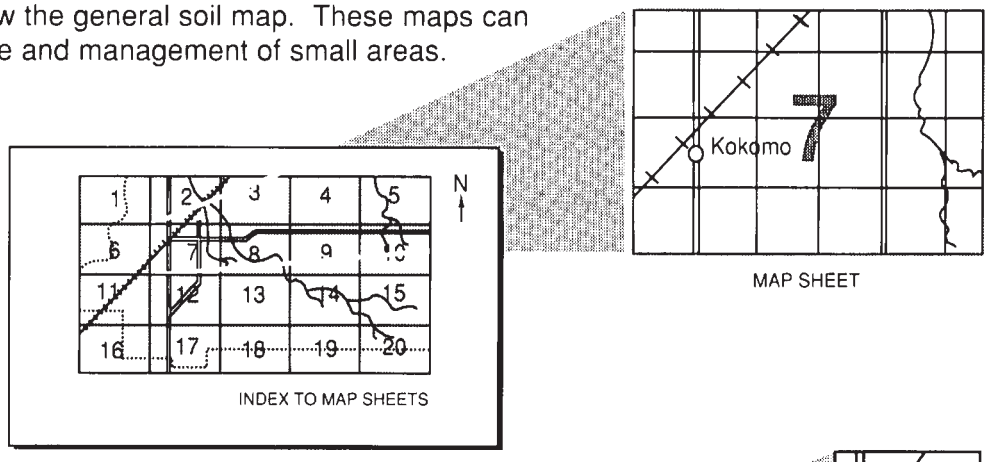
The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

Detailed Soil Maps

The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.

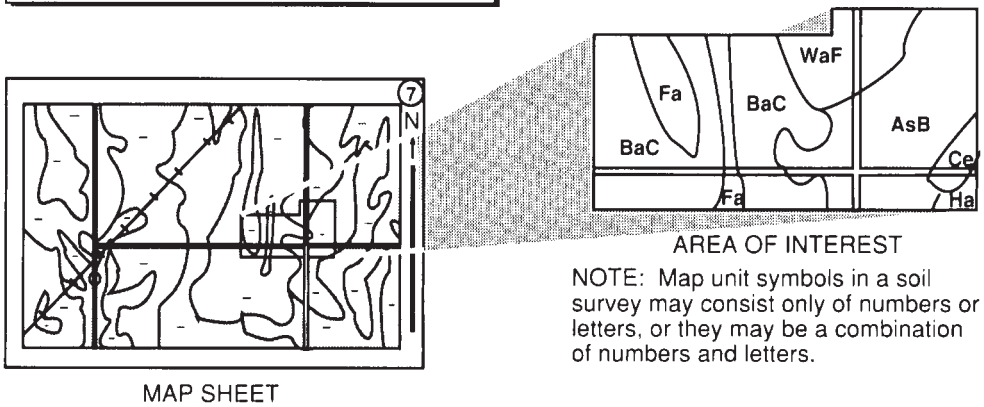
To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.



INDEX TO MAP SHEETS

MAP SHEET

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units** (see Contents), which lists the map units by symbol and name and shows the page where each map unit is described.



MAP SHEET

AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1983. Soil names and descriptions were approved in 1985. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1984. This survey was made cooperatively by the Soil Conservation Service, the United States Department of the Interior, Bureau of Land Management, and the Utah Agricultural Experiment Station.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

All programs and services of the Soil Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Cover: An area of the Rock outcrop-Skos-Piute-Mido general soil map unit on broad structural benches dissected by deep, narrow canyons.

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Issued October 1993

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Summary of Tables

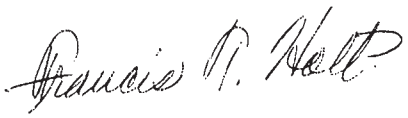
Foreword

This soil survey contains information that can be used in land-planning programs in the survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.



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Soil Survey of San Juan County, Utah, Central Part

By David T. Hansen, Bureau of Land Management, and Robert H. Fish, Soil Conservation Service

Fieldwork by William Paul Curtis and David T. Hansen, Bureau of Land Management, and Duane A. Lammers, Robert H. Fish, John Scott, Ron Pearson, Tim Watson, Linda Cluff, and Tom Jarman, Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service, in cooperation with United States Department of the Interior, Bureau of Land Management, and the Utah Agricultural Experiment Station

General Nature of the Survey Area

This survey area is bounded on the west by Lake Powell, on the east by Dolores and Montezuma Counties, Colorado, on the south by the Navajo Indian Reservation and the San Juan River, and on the north by the Manti-La Sal National Forest (fig. 1).

The survey area represents about 1,654,319 acres, or about 2,585 square miles, in San Juan County. The communities of Mexican Hat and Bluff serve as trading centers, as do Blanding and Monticello just outside the survey area. Halls Crossing and Hite have recreational facilities and marinas on Lake Powell.

The survey area is crossed from north to south by U.S. Highway 163 from Monticello to Mexican Hat. It is crossed from east to west by State Road 95 from Blanding to Hite, by State Road 263 from near Natural Bridges National Monument to Halls Crossing, and by State Road 262 from south of Blanding to the Navajo Indian Reservation. It also is crossed from near Natural Bridges National Monument south across Cedar Mesa to Mexican Hat by State Road 261.

The survey area includes Natural Bridges National Monument, Goosenecks of the San Juan River State Park, and portions of Glen Canyon National Recreation Area. It has many areas of scenic beauty and of archaeological and recreational interest. Elevations range from about 3,700 feet along Lake Powell to 8,900 feet on the Woodenshoe Buttes adjacent to the Manti-La Sal National Forest.

The principal drainageways in the eastern part of the survey area are Montezuma Creek, Recapture Creek, Cottonwood Creek, Butler Wash, and Comb Wash. They flow south into the San Juan River. The major drainageways in the western part of the survey area are Grand Gulch, which flows to the southwest into the San Juan River, and Red Canyon and White Canyon, which flow to the northwest into Lake Powell. All stream channels are intermittent along most of their length during late summer and fall.

Most of the survey area is used as rangeland. Some areas of dryland farming are on high mesas near Blanding, on Cedar Mesa, and on Deer Flat. Irrigated cropland is along the San Juan River at Bluff and along Montezuma Creek.

An older survey, "San Juan Area, Utah," was published in 1962 *(6)*. This earlier survey covers a part of the present survey area. The present survey, however, updates the earlier survey and provides additional information and larger maps, which show the soils in greater detail.

Climate

Prepared by the National Climatic Data Center, Asheville, North Carolina.

In San Juan County, Utah, summers are hot, especially at the lower elevations, and winters are cold. Precipitation is normally light at the lower elevations throughout the year. At the higher elevations,

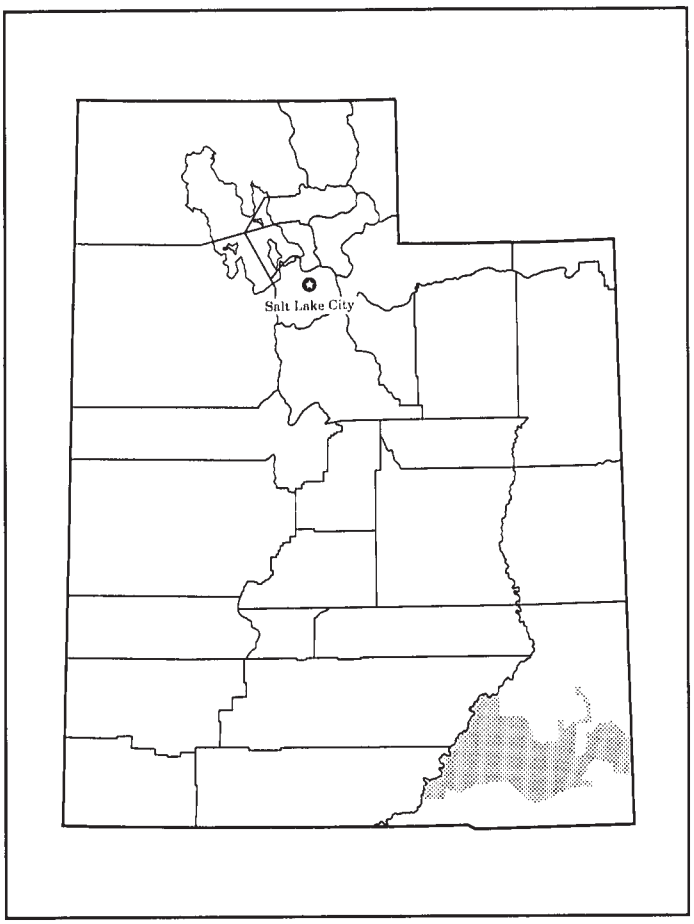

Figure 1.—Location of San Juan County, central part, in Utah.

precipitation is much greater and snow accumulates to considerable depths.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Blanding, Utah, in the period 1951 to 1981. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 30 degrees F and the average daily minimum temperature is 19 degrees. The lowest temperature on record, which occurred at Blanding on February 8, 1933, is -23 degrees. In summer, the average temperature is 70 degrees and the average daily maximum temperature is 87 degrees. The highest recorded temperature, which occurred at Blanding on June 22, 1905, is 110 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total average annual precipitation is about 12 inches. Of this, about 5 inches, or 40 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 3 inches. The heaviest 1-day rainfall during the period of record was 4.48 inches at Blanding on August 1, 1968. Thunderstorms occur on about 33 days each year.

The average seasonal snowfall is about 42 inches. The greatest snow depth at any one time during the period of record was 27 inches. On an average of 28 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 35 percent. Humidity is higher at night, and the average at dawn is about 55 percent. The sun shines 75 percent of the time possible in summer and 60 percent in winter. The prevailing wind is from the southeast. Average windspeed is highest, 9 miles per hour, in spring.

Every few years the survey area is struck by blizzards that include high winds and drifting snow. Even at the lower elevations, the snow may remain on the ground for many weeks.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind or segment of the landscape. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landscape, a soil scientist

develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Soil scientists, with the assistance of range specialists, made this survey to study soil and plant community relationships. They identified the soils in the area and the plant communities associated with the soils. They also identified the major uses for the soil survey information. Before actual fieldwork was begun, available information on soils, geology, climate, vegetation, landforms, and patterns of land use were gathered. This information was reviewed and interpreted on the basis of a national system for classifying soils and from knowledge of soil-plant relationships recognized in similar areas of the state.

The general procedures followed in making this survey are described in the "National Soils Handbook" of the Soil Conservation Service. The "Soil Survey of the Navajo Indian Reservation, San Juan County, Utah," published in 1980, the "Soil Survey of Canyonlands Area, Parts of Grand and San Juan Counties, Utah," and the "Geologic Map of Southeast Utah" were among the initial references used.

Preliminary landform, climatic, and geologic breaks were plotted at a scale of 1:250,000 on a satellite image of the area. This image and information about vegetation were used to generate a preliminary general soil map at the same scale. The mapping teams used this preliminary map to locate major breaks between types of soils and plant communities. They made adjustments based on the soils and plant communities that were encountered during the more detailed mapping. This adjusted preliminary map served as the basis for the final general soil map.

Climatic zones represent a statewide convention for separating plant communities into major types based on average annual precipitation. The major climate and elevation breaks used in this survey are divided into four climatic zones—Desert, Semidesert, Upland, and Mountain.

The *Desert* climatic zone is at an elevation of 4,000 to 4,800 feet and receives 5 to 8 inches of precipitation per year. It is dominated by shrubs and grasses. The shrubs are mainly shadscale and blackbrush, but fourwing saltbush grows on the deeper sandy soils. This climatic zone occurs as a broad band along Lake Powell and the San Juan River. The soils are typically dry throughout during most of the growing season.

The *Semidesert* climatic zone is at an elevation of 4,800 to 6,000 feet and receives 8 to 12 inches of precipitation per year. It is dominated by shrubs and grasses and has areas of Utah juniper and pinyon at elevations above about 5,000 feet. The shrubs are mainly blackbrush and shadscale in areas west of Comb Ridge and shadscale and Wyoming big sagebrush in areas east of Comb Ridge. The soils in this climatic zone are dry during most of the growing season but usually are moist in some part during spring and late summer. This zone occurs as a broad band on the lower part of mesas, such as Cajon Mesa, Black Mesa, McCracken Mesa, and Polly Mesa, and on the upper part of structural benches above Lake Powell.

The *Upland* climatic zone is at an elevation of 6,000 to 7,800 feet and receives 12 to 16 inches of precipitation per year. It is dominated by trees, shrubs, and grasses. The trees are pinyon and Utah juniper. The shrubs are typically Wyoming big sagebrush and fourwing saltbush. Mexican cliffrose, snowberry, Utah serviceberry, and birchleaf mountainmahogany grow on the steeper slopes. Roundleaf buffaloberry is in areas west of Comb Ridge. The soils in this climatic zone are dry during most of the growing season but are moist in some part during spring and late summer in most years. This zone is on most of the mesas and the higher structural benches, including Cedar Mesa, the Tables of the Sun, Deer Flat, and the upper part of Alkali Bench and the adjacent mesas.

The *Mountain* climatic zone is at an elevation of 7,800 to 8,900 feet and receives 16 to 22 inches of precipitation per year. It is dominated by trees, shrubs, and grasses. It occurs as a narrow band around the Woodenshoe Buttes and adjacent to the Manti-La Sal National Forest. Shrubs are mainly Gambel oak, Wyoming big sagebrush, and mountain big sagebrush. Trees include ponderosa pine, Douglas fir, pinyon, and Utah juniper. The soils are typically cold and moist during a significant part of the growing season.

Using these climatic divisions, the soil-vegetation teams investigated the landscape and identified soil and vegetation differences in relation to different landforms. Similar landforms at about the same elevation in similar climatic zones were expected to have developed similar soils over time under similar plant communities. Characteristics identified at one location could then be predicted in similar locations without detailed investigations.

The actual field mapping of soils was done in conjunction with the collection of information on plant communities by range specialists. Delineations were made on aerial photographs using a stereoscope. These photographs show vegetation patterns, landforms, roads, drainage patterns, and other features that help the specialist draw accurate boundaries. The preliminary boundaries of slopes and landforms were plotted stereoscopically on quad-centered aerial photographs taken in 1975 and 1976 at a scale of

1:80,000 and enlarged to a scale of 1:24,000.

The delineations were then field checked, and the boundaries were adjusted as needed. Traverses of the survey area were made by teams of soil scientists and range conservationists in trucks and in a helicopter in areas where access was limited. Soil examinations were made on representative landforms in representative plant communities. The traverses were spaced ¼ mile to 2 miles apart, depending on the terrain.

In some delineations numerous holes were dug to study soil profiles. Excavations were made by spade and by hand auger or in backhoe pits. Transects were made in selected areas of the major soil-plant communities. In areas of open terrain, they were spaced at 0.1- to 0.2-mile intervals to estimate map unit composition. In some delineations only a few profiles were observed to determine whether the soil characteristics were like those observed on similar landscapes. On some steep slopes, frequently only the surface features, slope, and kind and amount of vegetation were observed to determine whether they were like those on other steep slopes.

Field mapping was transferred by hand to a film-stable, 1:24,000 orthophotoquad base for final map compilation. Cultural features were transferred from U.S. Geological Survey topographic maps.

Samples of some soils were gathered for laboratory measurements and for engineering tests. All soils were field tested to determine specific characteristics, such as texture, field pH, color, and consistence. Representative profiles were selected for laboratory analysis. The soil material was examined and described to a depth of about 6 feet or to bedrock if the soil depth was less than 6 feet. Samples for chemical and physical analyses were sent to the Soil Survey Laboratory in Lincoln, Nebraska. The results of the analyses and a description of laboratory procedures can be obtained by request from the laboratory.

Interpretations of soil characteristics may be modified during the course of a soil survey. Data are assembled from other sources, such as test results, field experience, and state or local specialists. For example, range specialists used transects to estimate the kinds and amounts of natural vegetation. Also, they clipped and weighed the annual production of the plant communities. These plant communities were then grouped into range sites.

The information gathered by the soil scientists was compared and integrated with the information gathered by the range specialists, and the soil map units and associated range sites were defined. The delineations on the soil maps represent these map units. The map units are made up of one or more major kinds of soils or miscellaneous areas. Each delineation of a map unit is expected to respond similarly to a particular use or management practice. The map units in this survey are named according to nationally established conventions. They are described in the sections "General Soil Map Units" and "Detailed Soil Map Units." The percentage given for each major soil component or miscellaneous area in a map unit represents the general percentage for that map unit over the entire survey area. The actual percentage of each major component can be expected to vary from one delineation to another.

Weather station data from Mexican Hat, Hite, and Bullfrog and field measurements of soil temperature at a depth of about 20 inches indicate that the mean annual soil temperature is warmer, more than 59 degrees F, in parts of the survey area than is typical for the area. These warmer soils are in the extreme southwestern part and western part of the survey area along the lower San Juan River near Mexican Hat and along Lake Powell. They are in areas that are less than 4,000 feet in elevation. The areas are of limited extent.

During a soil survey, the soils are named, described, interpreted, and delineated on aerial photographs and laboratory data are assembled. The detailed information is then organized so that it can be used by farmers, rangeland and woodland managers, engineers, planners, developers, builders, home buyers, and others.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The soils or miscellaneous areas making up one unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils or miscellaneous areas can be identified on the map. Likewise, areas that are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The general soil map units in this survey have been grouped for broad interpretive purposes. Each of the broad groups and the map units in each group are described on the following pages.

The delineations of the soils on the general soil map in this survey do not fully agree with those of the soils in adjacent survey areas. Differences are the result of modifications in series concepts or variations in soil patterns or in the intensity of mapping.

Map Unit Descriptions

Rock Outcrop and Dominantly Well Drained and Somewhat Excessively Drained, Nearly Level to Steep Soils in an Arid Climate Zone

These soils consist of three map units. They make up about 33 percent of the survey area. The vegetation is mainly shrubs and grasses.

These soils are very shallow to very deep. They formed in eolian material, alluvium, residuum, and colluvium derived dominantly from sandstone. They are used for rangeland, wildlife habitat, or recreation.

1. Rock Outcrop-Piute-Sheppard

Rock outcrop and very shallow or very deep, well drained or somewhat excessively drained, gently sloping soils; mainly on structural benches and mesas

This map unit is in the western and southern parts of the survey area. It is characterized by broad areas of slickrock with deep canyons. It is mainly on structural benches and on the hillsides of structural benches. Slopes range from 2 to 15 percent. The vegetation on the Piute soils is mainly blackbrush, Indian ricegrass, and galleta. The vegetation on the Sheppard soils is mainly sand dropseed, sandhill muhly, Indian ricegrass, and sand sagebrush. Elevation is 3,700 to 5,000 feet. The average annual precipitation is 6 to 8 inches, the mean annual air temperature is 52 to 56 degrees F, and the frost-free period is 160 to 200 days.

This unit makes up about 13 percent of the survey area. It is about 35 percent Rock outcrop, 30 percent Piute soils, 20 percent Sheppard soils, and 15 percent minor soils.

The Rock outcrop consists of bare exposed sandstone and occurs as broad exposures of slickrock and as cliffs and ledges.

Piute soils are on structural benches intermixed with the Rock outcrop and on mesas. They are very shallow and well drained. They formed in eolian material derived dominantly from sandstone. They are sandy and are underlain by sandstone bedrock at a depth of 5 to 10 inches. Typically, the surface layer is reddish yellow loamy fine sand about 9 inches thick. Sandstone bedrock is at a depth of about 9 inches.

Sheppard soils are on structural benches, in concave areas on the hillsides of structural benches, and on mesas. They are very deep and somewhat excessively drained. They formed in eolian material derived dominantly from sandstone. They are sandy. Typically, the surface layer is light red loamy fine sand about 6 inches thick. The underlying material to a depth of 60 inches or more is light red loamy fine sand.

Of minor extent in this unit are Moenkopie soils on structural benches next to Lake Powell, Nakai soils in

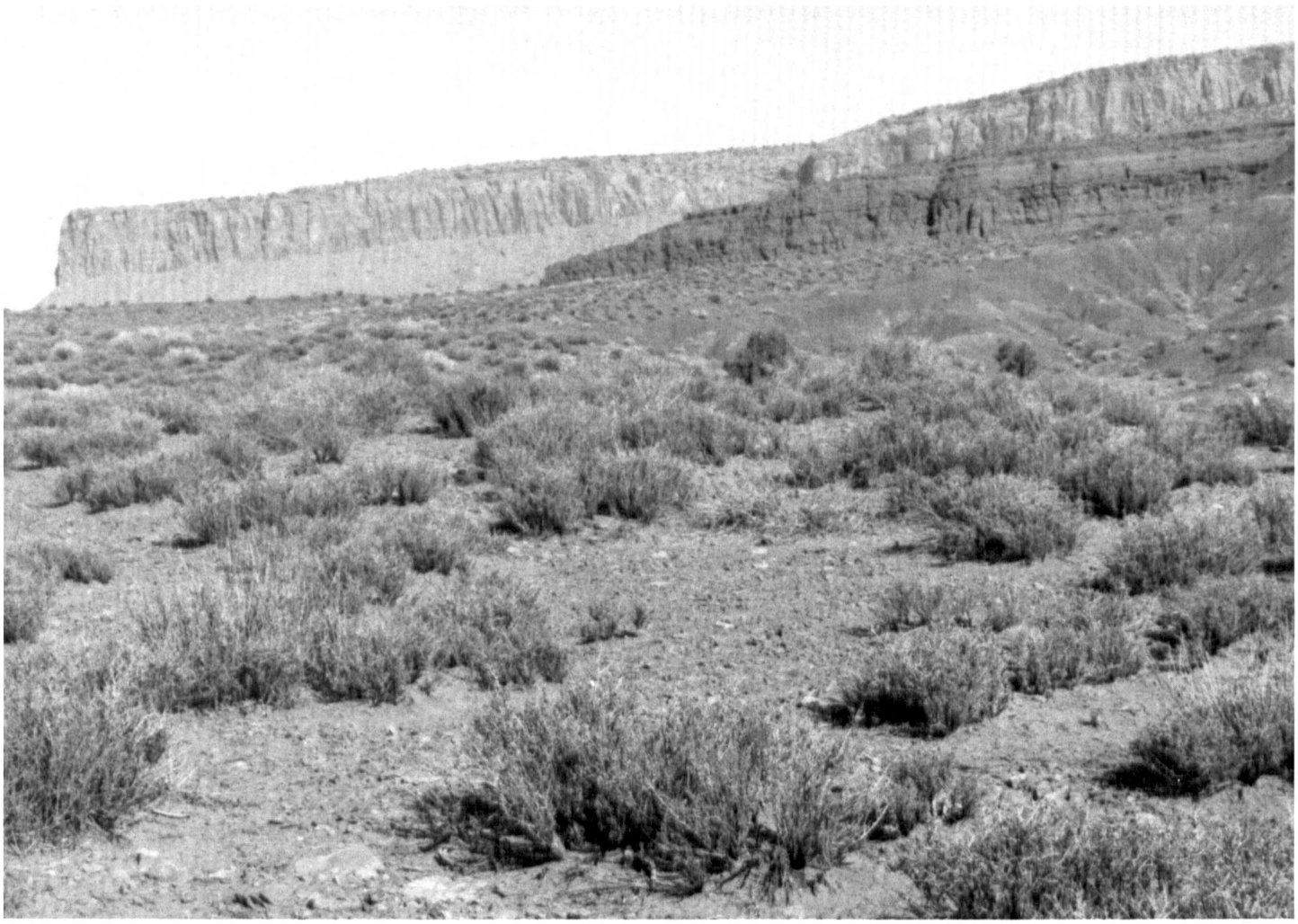

Figure 2.—An area of the Moenkopie-Rock outcrop-Myton family general soil map unit on structural benches and canyon hillsides.

concave areas on structural benches, Limeridge soils on eroded pediments of structural benches near Halls Crossing, and Myton family soils on steep canyon hillsides.

This unit is used mainly for rangeland, wildlife habitat, or recreation.

The plant communities on the Piute and Sheppard soils are dominated by blackbrush and Mormon tea. They provide habitat of marginal quality for game species, such as deer and desert bighorn sheep. Coyote, desert cottontail, and black-tailed jackrabbit inhabit areas of this unit, and raptors hunt in these areas. The cliffs and ledges in the broad areas of slickrock restrict access and provide roosting sites for raptors, and potholes and springs provide intermittent sources of water.

2. Moenkopie-Rock Outcrop-Myton Family

Rock outcrop and very shallow, shallow, deep, or very deep, well drained, gently sloping to steep soils; mainly on structural benches and canyon hillsides

This map unit is in the western part of the survey area (fig. 2). Slopes range from 2 to 50 percent. The vegetation on the Moenkopie soils is mainly shadscale, blackbrush, Mormon tea, and galleta. The vegetation on the Myton family soils is mainly shadscale, bud sagebrush, Indian ricegrass, and galleta. Elevation is 3,700 to 6,000 feet. The average annual precipitation is about 5 to 8 inches, the mean annual air temperature is 52 to 56 degrees F, and the frost-free period is 160 to 220 days.

This unit makes up about 14 percent of the survey

area. It is about 40 percent Moenkopie soils, 35 percent Rock outcrop, 5 percent Myton family soils, and 20 percent minor soils.

Moenkopie soils are on gently sloping and moderately steep hillsides, structural benches, and hogbacks. They are very shallow and shallow and are well drained. They formed in eolian material and residuum derived dominantly from sandstone. Typically, the surface layer is red very gravelly fine sandy loam about 2 inches thick. The underlying material is red sandy loam about 4 inches thick. Sandstone bedrock is at a depth of about 6 inches.

The Rock outcrop consists of bare exposed sandstone and occurs as cliffs and ledges and some areas of slickrock.

Myton family soils are on steep canyon hillsides. They are deep and very deep and are well drained. They formed in colluvium derived dominantly from sandstone. They are stony and are underlain by sandstone bedrock at a depth of 60 inches or more. Typically, the surface layer is light red extremely bouldery loam about 4 inches thick. The underlying material to a depth of 60 inches or more is light red very cobbly sandy loam.

Of minor extent in this unit are Nakai soils in concave areas on structural benches, Bankard family soils along stream channels, Shalet and Moffat soils on structural benches, and Strych soils on steep north-facing hillsides.

This unit is used for rangeland, wildlife habitat, or recreation.

The plant communities on the Moenkopie soils and on the Myton family soils are dominated by blackbrush, shadscale, and Indian ricegrass. They provide habitat of marginal quality for game species, such as desert bighorn sheep, in the northwestern part of the unit. A variety of small mammals inhabit areas of this unit. These include desert cottontail, shrews, mice, black-tailed jackrabbit, chipmunks, and rock squirrels on the steep slopes. Coyote prey upon these small mammals. Raptors hunt in areas of this unit because of roosting sites on canyon rims and ledges. Potholes and springs in the areas of slickrock provide intermittent sources of water.

3. Nakai-Limeridge-Bluechief

Well drained, nearly level and gently sloping soils that are shallow, deep, or very deep to a hardpan or are moderately deep over bedrock; on structural benches, fan terraces, and cuestas

This map unit is in the southwestern part of the survey area. It is characterized by broad structural benches dissected by narrow drainage channels. It is mainly on structural benches and fan terraces below steep canyon walls. Slopes range from 1 to 12 percent. The vegetation on the Nakai soils is mainly Indian ricegrass, fourwing saltbush, dropseed, and galleta. The vegetation on the Limeridge soils is mainly blackbrush, galleta, and Mormon tea. The vegetation on the Bluechief soils is mainly blackbrush, Indian ricegrass, and galleta. Elevation is 4,400 to 5,600 feet. The average annual precipitation is 6 to 8 inches, the mean annual air temperature is 50 to 57 degrees F, and the frost-free period is 150 to 200 days.

This unit makes up about 6 percent of the survey area. It is about 35 percent Nakai soils, 25 percent Limeridge soils, 20 percent Bluechief soils, and 20 percent minor soils.

Nakai soils are on fan terraces and the upper part of structural benches. They are nearly level and gently sloping, deep or very deep to a hardpan, and well drained. They formed in eolian material and alluvium derived from sandstone. They are loamy throughout. Typically, the surface layer is reddish yellow fine sandy loam about 2 inches thick. The underlying material is reddish yellow, pink, and reddish pink fine sandy loam about 42 inches thick. A cemented hardpan is at a depth of about 44 inches, and limestone bedrock is at a depth of about 50 inches.

Limeridge soils are on structural benches and cuestas. They are gently sloping, shallow to a hardpan, and well drained. They formed in residuum derived from interbedded sandstone and limestone. They are loamy and are underlain by limestone bedrock at a depth of 20 to 40 inches. Typically, the surface layer is light reddish brown gravelly fine sandy loam about 1 inch thick. The underlying material is reddish yellow and pink gravelly fine sandy loam, fine sandy loam, and gravelly sandy clay loam about 15 inches thick. A cemented hardpan is at a depth of about 16 inches, and limestone bedrock is at a depth of about 22 inches.

Bluechief soils are on structural benches. They are gently sloping, moderately deep, and well drained. They formed in eolian material and alluvium derived dominantly from sandstone. They are loamy and are underlain by limestone or sandstone bedrock at a depth of 20 to 40 inches. Typically, the surface layer is yellowish red fine sandy loam about 2 inches thick. The next layer is yellowish red fine sandy loam about 13 inches thick. The underlying material is reddish pink and pink fine sandy loam about 11 inches thick. Limestone bedrock is at a depth of about 26 inches.

Of minor extent in this unit are Bankard family soils along stream channels, Green River family soils on flood plains, Sheppard soils on northeast-facing side slopes, and Moenkopie soils on dissected structural benches.

Figure 3.—An area of the Rock outcrop-Skos-Piute-Mido general soil map unit.

This unit is used for rangeland, wildlife habitat, or recreation.

The plant communities are dominated by blackbrush, Indian ricegrass, and shadscale. They provide habitat of marginal quality for game species, such as deer. Shrews, mice, desert cottontail, and black-tailed jackrabbit inhabit areas of this unit. Coyote and foxes prey upon these small mammals. Raptors hunt in areas of this habitat type.

Rock Outcrop and Dominantly Well Drained and Excessively Drained, Nearly Level to Very Steep Soils in a Semiarid Climate Zone

These soils consist of four map units. They make up about 37 percent of the survey area. The native vegetation is mainly shrubs, grasses, and trees.

These soils are very shallow to very deep. They formed in residuum, colluvium, and eolian material derived dominantly from sandstone and shale. They are used for rangeland, wildlife habitat, or recreation.

4. Rock Outcrop-Skos-Piute-Mido

Rock outcrop and very shallow, shallow, or very deep, well drained and excessively drained, gently sloping and moderately steep soils; mainly on dissected structural benches and hillsides of structural benches

This map unit is in the southern and western parts of the survey area. It is characterized by broad structural benches dissected by deep, narrow canyons (fig. 3). It is mainly on dissected structural benches, but it also occurs on hogbacks in the southern part of the survey area. Slopes range from 2 to 30 percent. The vegetation on the Skos and Piute soils is mainly blackbrush, Mormon tea, and galleta. The vegetation on the Mido soils is mainly fourwing saltbush, sandhill muhly, needleandthread, and Indian ricegrass. Elevation is 4,700 to 6,500 feet. The average annual precipitation is 8 to 12 inches, the mean annual air temperature is 48 to 54 degrees F, and the frost-free period is 120 to 170 days.

This unit makes up about 11 percent of the survey area. It is about 45 percent Rock outcrop, 20 percent Skos soils, 10 percent Piute soils, 10 percent Mido soils, and 15 percent minor soils.

The Rock outcrop consists of bare exposed sandstone and occurs as ledges and as areas of slickrock.

Skos soils are on dissected structural benches and on the hillsides of structural benches. They are gently sloping and moderately steep, very shallow and shallow, and well drained. They formed in residuum derived from sandstone and interbedded shale. They are stony and are underlain by sandstone bedrock at a depth of 4 to 20 inches. Typically, the surface layer is reddish brown channery loam about 1 inch thick. The underlying material is reddish brown very channery sandy clay loam about 5 inches thick. Sandstone bedrock is at a depth of about 6 inches.

Piute soils are on ridgetops and the upper part of structural benches. They are gently sloping and moderately steep, very shallow, and well drained. They formed in eolian material derived from sandstone. They are sandy and are underlain by sandstone bedrock at a depth of 5 to 10 inches. Typically, the surface layer is reddish yellow loamy fine sand about 9 inches thick. Sandstone bedrock is at a depth of about 9 inches.

Mido soils are on east- and northeast-facing structural benches and on the hillsides of structural benches. They are gently sloping, very deep, and excessively drained. They formed in eolian material derived from sandstone. They are sandy. Typically, the surface layer is red loamy fine sand about 10 inches thick. The underlying material to a depth of 60 inches or more also is red loamy fine sand.

Of minor extent in this unit are Strych soils on steep north- and northeast-facing hillsides, Rizno soils on structural benches at the higher elevations, Mivida soils on concave slopes, Milok soils on the ridges of structural benches, and Bankard family soils along washes in canyons.

This unit is used for rangeland, wildlife habitat, or recreation.

This unit provides wildlife habitat of low to moderate quality. Blackbrush and shadscale are important forage plants for desert bighorn sheep on the steep slopes in the northern part of the map unit. In adjacent areas, Utah juniper and pinyon provide cover for mule deer and the deep canyons are important travel corridors. Desert cottontail, shrews, mice, and black-tailed jackrabbit inhabit areas that support blackbrush and shrub plant communities on the structural benches. Chipmunks and rock squirrels inhabit areas that support blackbrush and shadscale on steep slopes. Coyote, badgers, and foxes prey upon these small mammals. Raptors hunt in areas of this unit and use the deep canyons as roosting and nesting sites. Potholes in the areas of slickrock provide intermittent sources of water. Small seeps in steep canyon walls provide additional sources of water for wildlife.

5. Skos-Myton Family-Rizno-Milok

Very shallow, shallow, deep, or very deep, well drained, nearly level to very steep soils; mainly on structural benches and hillsides

This map unit is in the western part of the survey area. It is characterized by structural benches dissected by deep canyons (fig. 4). Slopes range from 1 to 70 percent. The vegetation on the Skos soils is mainly blackbrush, Mormon tea, and galleta. The vegetation on the Myton family soils is mainly blackbrush, shadscale, Indian ricegrass, and saline wildrye. The vegetation on the Rizno soils is mainly Utah juniper, pinyon, blackbrush, and Mormon tea. The vegetation on the Milok soils is mainly blackbrush, Indian ricegrass, and galleta. Elevation is 4,000 to 6,600 feet. The average annual precipitation is 8 to 12 inches, the mean annual air temperature is 49 to 56 degrees F, and the frost-free period is 130 to 200 days.

This unit makes up about 11 percent of the survey area. It is about 20 percent Skos soils, 20 percent Myton family soils, 20 percent Rizno soils, 10 percent Milok soils, and 30 percent minor soils.

Skos soils are on structural benches. They are gently sloping and moderately steep, very shallow and shallow, and well drained. They formed in alluvium and residuum derived dominantly from sandstone and shale. They are stony and are underlain by sandstone bedrock at a depth of 4 to 20 inches. Typically, the surface layer is reddish brown channery loam about 1 inch thick. The underlying material is reddish brown very channery sandy clay loam about 5 inches thick. Sandstone bedrock is at a depth of 6 inches.

Myton family soils are on the hillsides of canyons and structural benches. They are steep and very steep, deep and very deep, and well drained. They formed in colluvium derived dominantly from sandstone. They are stony and are underlain by sandstone or shale bedrock at a depth of 40 to more than 60 inches. Typically, the surface layer is light red extremely bouldery loam about 4 inches thick. The underlying material to a depth of 60 inches or more is light red very cobbly sandy loam.

Rizno soils are on structural benches. They are gently sloping and moderately steep, very shallow and shallow, and well drained. They formed in residuum and eolian material derived dominantly from sandstone. They are loamy and are underlain by sandstone bedrock at a depth of 4 to 10 inches. Typically, the

Figure 4.—An area of the Skos-Myton family-Rizno-Milok general soil map unit on structural benches and the steep hillsides of canyons.

surface layer is light reddish brown fine sandy loam about 5 inches thick. The underlying material also is light reddish brown fine sandy loam. It is about 14 inches thick. Sandstone bedrock is at a depth of about 19 inches.

Milok soils are on structural benches and fan terraces. They are nearly level and gently sloping, very deep, and well drained. They formed in eolian material and alluvium derived dominantly from sandstone. They are loamy and are underlain by sandstone bedrock at a depth of more than 60 inches. Typically, the surface layer is reddish brown fine sandy loam about 2 inches thick. The next layer is yellowish red fine sandy loam about 6 inches thick. The underlying material to a depth of 60 inches or more is pink fine sandy loam.

Of minor extent in this unit are Pastern soils on structural benches and hillsides, Mivida soils on east- and northeast-facing slopes, Mido soils below northeast-facing ridges, and Strych soils on steep north- and northeast-facing hillsides.

This unit is used for rangeland, wildlife habitat, or recreation.

This unit provides wildlife habitat of low to moderate quality. The steeply sloping areas in the northwestern part of the unit provide important habitat for desert bighorn sheep. In these areas, plant communities dominated by blackbrush and shadscale provide forage and springs or seeps supply water. Mule deer use the canyons in this unit primarily as travel corridors. Desert cottontail, black-tailed jackrabbit, chipmunks, shrews, mice, and rock squirrels inhabit areas on benches and slopes that support blackbrush and shadscale. Foxes, coyote, and raptors prey upon these small mammals. The steep canyon walls provide roosting and nesting sites for raptors. Seeps provide water for wildlife in canyons.

6. Rizno-Littlenan-Bodot

Very shallow to moderately deep, well drained, gently sloping to steep soils; mainly on structural benches and hillsides

This map unit is in the southeastern and south-central parts of the survey area. It is characterized by sloping hillsides of canyons broken by sandstone benches and cut by stream channels. Slopes range from 32 to 50 percent. The vegetation on the Rizno soils is mainly Utah juniper, pinyon, and Mexican cliffrose. The vegetation on the Littlenan soils is mainly galleta, Indian ricegrass, shadscale, and Castle Valley saltbush. The vegetation on the Bodot soils is mainly Utah juniper, pinyon, saline wildrye, and shadscale. Elevation is 4,600 to 6,000 feet. The average annual precipitation is 8 to 12 inches, the mean annual air temperature is 49 to 54 degrees F, and the frost-free period is 120 to 180 days.

This unit makes up about 9 percent of the survey area. It is about 35 percent Rizno soils, 25 percent Littlenan soils, 10 percent Bodot soils, and 30 percent minor soils.

Rizno soils are on structural benches. They are gently sloping and moderately steep, shallow and very shallow, and well drained. They formed in residuum derived dominantly from sandstone. They are loamy throughout and are underlain by sandstone bedrock at a depth of 4 to 20 inches. Typically, the surface layer is light reddish brown fine sandy loam about 5 inches thick. The underlying material also is light reddish brown fine sandy loam. It is about 14 inches thick. Sandstone bedrock is at a depth of about 19 inches.

Littlenan soils are on structural benches. They are gently sloping and moderately steep, moderately deep, and well drained. They formed in residuum derived dominantly from shale. They are clayey and are underlain by shale bedrock at a depth of 20 to 40 inches. Typically, the surface layer is light brown gravelly loam about 3 inches thick. The underlying material is light brown silty clay loam and silty clay about 26 inches thick. Weathered shale bedrock is at a depth of about 29 inches.

Bodot soils are on steep hillsides. They are moderately deep and well drained. They formed in colluvium and residuum derived dominantly from sandstone and shale. Weathered bedrock is at a depth of 20 to 40 inches. Typically, the surface layer is light brown very cobbly loam about 6 inches thick. The underlying material is light brownish gray and light gray clay loam about 30 inches thick. Weathered shale bedrock is at a depth of about 36 inches.

Of minor extent in this unit are Ruinpoint soils in concave areas on structural benches, Redbank family soils and Bankard family soils along stream channels, Recapture soils on the lower stream terraces, Myton family soils on steep south-facing slopes, Skos soils on south-facing ridgetops and ledges, and Nakai soils on fan terraces.

This unit is used for rangeland, wildlife habitat, or recreation.

This unit provides wildlife habitat of moderate quality. The complexity of the terrain and vegetation offers a variety of habitat types. The drainageways along the canyon floors provide travel corridors, cover in the black greasewood and basin big sagebrush plant communities, and some water during the spring and late summer. Utah juniper and pinyon on benches and ledges provide cover for mule deer.

7. Ruinpoint-Rizno-Cahona

Very shallow, shallow, or very deep, well drained, nearly level and gently sloping soils; on mesas

This map unit is in the eastern part of the survey area. It is characterized by broad mesas. Slopes range from 1 to 15 percent. The vegetation on the Ruinpoint and Cahona soils is mainly Wyoming big sagebrush, Indian ricegrass, and galleta. The vegetation on the Rizno soils is mainly Utah juniper, pinyon, and Mexican cliffrose. Elevation is 4,700 to 6,000 feet. The average annual precipitation is 8 to 12 inches, the mean annual air temperature is 48 to 53 degrees F, and the frost-free period is 120 to 150 days.

This unit makes up about 6 percent of the survey area. It is about 40 percent Ruinpoint soils, 15 percent Rizno soils, 15 percent Cahona soils, and 30 percent minor soils.

Ruinpoint soils are on mesas. They are nearly level and gently sloping, very deep, and well drained. They formed in eolian material derived dominantly from

sandstone. They are silty. Typically, the surface layer is yellowish red very fine sandy loam about 2 inches thick. The underlying material to a depth of more than 60 inches is yellowish red and reddish yellow silt loam.

Rizno soils are near the edges of mesas. They are gently sloping, very shallow and shallow, and well drained. They formed in eolian material and residuum derived dominantly from sandstone. They are loamy and are underlain by sandstone bedrock at a depth of 4 to 20 inches. Typically, the surface layer is light reddish brown fine sandy loam about 5 inches thick. The underlying material also is light reddish brown fine sandy loam. It is about 14 inches thick. Sandstone bedrock is at a depth of about 19 inches.

Cahona soils are on the upper part of mesas. They are nearly level and gently sloping, very deep, and well drained. They formed in eolian material derived dominantly from sandstone. They are loamy. Typically, the surface layer is reddish brown very fine sandy loam about 3 inches thick. The subsoil is yellowish red sandy clay loam about 12 inches thick. The underlying material to a depth of more than 60 inches is reddish yellow and pink sandy clay loam and loam.

Of minor extent in this unit are Littlenan soils on structural benches underlain by shale bedrock, Bodot soils on steep hillsides, Strych soils on steep north-facing hillsides, Recapture soils on stream terraces, and Redbank family soils along stream channels.

This unit is used for rangeland, wildlife habitat, or recreation.

This unit provides wildlife habitat of low to moderate quality. It is of greatest value to wildlife in areas where the habitat types of Utah juniper and pinyon are interspersed with sagebrush parks or where drainageways that support basin big sagebrush cut across the unit. The Utah juniper and pinyon and the basin big sagebrush plant communities provide cover and bedding grounds for mule deer. The areas that support Wyoming big sagebrush are used for forage. Small mammals, such as shrews, mice, and black-tailed jackrabbit, also frequent these areas. Coyote, foxes, badgers, and raptors hunt in areas of this unit.

Rock Outcrop and Dominantly Well Drained, Nearly Level to Very Steep Soils in a Subhumid or Dry, Subhumid Climate Zone

These soils consist of four map units. They make up about 30 percent of the survey area. The native vegetation is mainly shrubs, grasses, and trees.

These soils are very shallow, shallow, deep, or very deep. They formed in alluvium, residuum, colluvium, and eolian material derived from sandstone and shale. They are used for rangeland, wildlife habitat, recreation, or dryland agriculture.

8. Barx-Rizno-Yarts

Very shallow, shallow, or very deep, well drained, nearly level to moderately steep soils; mainly on mesas

This map unit is in the central and northwestern parts of the survey area. It is characterized by broad mesas and some sloping hillsides. Slopes range from 1 to 30 percent. The vegetation on the Barx soils is mainly Wyoming big sagebrush, needleandthread, and Indian ricegrass. The vegetation on the Rizno soils is mainly pinyon, Utah juniper, Bigelow sagebrush, and Mormon tea. The vegetation on the Yarts soils is mainly pinyon, Utah juniper, roundleaf buffaloberry, and bottlebrush squirreltail. Elevation is 5,200 to 8,000 feet. The average annual precipitation is 12 to 16 inches, the mean annual air temperature is 46 to 52 degrees F, and the frost-free period is 100 to 150 days.

This unit makes up about 11 percent of the survey area. It is about 35 percent Barx soils, 20 percent Rizno soils, 20 percent Yarts soils, and 25 percent minor soils.

Barx soils are on mesas. They are nearly level and gently sloping, very deep, and well drained. They formed in alluvium and eolian material derived dominantly from sandstone. They are loamy. Typically, the surface layer is reddish brown very fine sandy loam about 3 inches thick. The subsoil is reddish brown and reddish yellow fine sandy loam and sandy clay loam about 33 inches thick. The underlying material to a depth of more than 60 inches is pink sandy clay loam.

Rizno soils are on mesas. They are gently sloping and moderately steep, very shallow and shallow, and well drained. They formed in eolian material and residuum derived dominantly from sandstone. They are loamy and are underlain by sandstone bedrock at a depth of 4 to 20 inches. Typically, the surface layer is light reddish brown fine sandy loam about 5 inches thick. The underlying material also is light reddish brown fine sandy loam. It is about 14 inches thick. Sandstone bedrock is at a depth of about 19 inches.

Yarts soils are on dissected slopes. They are gently sloping and moderately steep, very deep, and well drained. They formed in alluvium and eolian material derived dominantly from sandstone. They are loamy and are underlain by sandstone or shale bedrock at a depth of more than 60 inches. Typically, the surface layer is yellowish red fine sandy loam about 5 inches thick. The underlying material to a depth of more than 60 inches also is yellowish red fine sandy loam.

Of minor extent in this unit are Rock outcrop and Skos soils on ledges of structural benches, Strych soils on steep hillsides, Milok and Mivida soils on south-facing structural benches, and Redbank family soils along stream terraces.

This unit is used for rangeland, recreation, or wildlife

Figure 5.—An area of the Cahona-Rizno-Strych general soil map unit on mesas and steep hillsides. The Abajo Mountains are in the background.

habitat. In isolated areas it is used for dryland agriculture.

This unit provides wildlife habitat of low to moderate quality. It provides important habitat for mule deer during severe winters when there is heavy snow cover at the higher elevations. It is of greatest value to mule deer in areas where pinyon and Utah juniper plant communities are intermingled with the Wyoming big sagebrush communities. The Utah juniper and pinyon and the basin big sagebrush plant communities provide cover and bedding grounds for the mule deer. The areas that support Wyoming big sagebrush are used for forage. Small mammals, such as shrews, mice, and black-tailed jackrabbit, also inhabit these areas. Coyote, foxes, badgers, and raptors hunt in areas of this unit. Intermittent supplies of water are available along stream channels during winter, spring, and late summer.

9. Cahona-Rizno-Strych

Very shallow, shallow, or very deep, well drained, nearly level to steep soils; mainly on mesas and hillsides

This map unit is in the northeastern part of the survey area. It is characterized by mesas isolated by deep canyons and mountainsides (fig. 5). Slopes range from 1 to 50 percent. The vegetation on the Cahona

soils is mainly Wyoming big sagebrush, needleandthread, and Indian ricegrass. The vegetation on the Rizno soils is mainly pinyon, Utah juniper, Bigelow sagebrush, and Mormon tea. The vegetation on the Strych soils is mainly pinyon, Utah juniper, birchleaf mountainmahogany, and saline wildrye. Elevation is 5,500 to 7,400 feet. The average annual precipitation is 12 to 16 inches, the mean annual air temperature is 45 to 51 degrees F, and the frost-free period is 100 to 140 days.

This unit makes up about 2 percent of the survey area. It is about 40 percent Cahona soils, 20 percent Rizno soils, 15 percent Strych soils, and 25 percent minor soils and Rock outcrop.

Cahona soils are on mesas. They are nearly level and gently sloping, very deep, and well drained. They formed in eolian material and alluvium derived dominantly from sandstone. They are loamy. Typically, the surface layer is reddish brown very fine sandy loam about 3 inches thick. The subsoil is yellowish red and reddish yellow sandy clay loam about 24 inches thick. The underlying material to a depth of 60 inches or more is pink loam.

Rizno soils are on mesas. They are gently sloping and moderately steep, very shallow or shallow, and well drained. They formed in eolian material and residuum derived dominantly from sandstone. They are loamy and are underlain by sandstone bedrock at a depth of 4 to 20 inches. Typically, the surface layer is light reddish brown fine sandy loam about 3 inches thick. The underlying material also is light reddish brown fine sandy loam. It is about 16 inches thick. Sandstone bedrock is at a depth of about 19 inches.

Strych soils are on hillsides. They are moderately steep and steep, very deep, and well drained. They formed in colluvium derived from shale and interbedded sandstone. They are stony. Typically, the surface layer is reddish brown extremely bouldery fine sandy loam about 8 inches thick. The upper part of the subsoil is yellowish red very stony fine sandy loam about 16 inches thick. The lower part to a depth of 60 inches or more is reddish yellow extremely stony fine sandy loam.

Of minor extent in this unit are Bookcliff soils on north-facing slopes, Bodot soils intermixed with the Strych soils on steep hillsides, Redbank family soils along stream channels in canyons, and areas of Rock outcrop occurring as cliffs and ledges.

This unit is used for rangeland, wildlife habitat, recreation, or dryland agriculture. In some areas it is used for irrigated agriculture.

This unit provides wildlife habitat of moderate quality. It provides important habitat for mule deer during severe winters when there is heavy snow cover at the higher elevations. It is of greatest value to mule deer in areas where pinyon, Utah juniper, birchleaf mountainmahogany, and other shrubs are near the Wyoming big sagebrush plant communities. These areas provide both cover and forage. Small mammals, such as chipmunks, rock squirrels, shrews, mice, and packrats, inhabit the steep slopes of the canyons. Raptors hunt in areas of this unit and roost in the canyon walls. Bobcats, coyote, and foxes use areas of this unit for hunting and as travel corridors. Water is available during winter, spring, and late summer along the major stream channels.

10. Rizno-Strych-Rock Outcrop

Rock outcrop and very shallow, shallow, or very deep, well drained, gently sloping to very steep soils; mainly on mesas, structural benches, and hillsides

This map unit is in the northern part of the survey area. It is characterized by narrow isolated mesas and structural benches and by steep hillsides (fig. 6). Slopes range from 3 to 70 percent. The vegetation on the Rizno soils is mainly pinyon, Utah juniper, Bigelow sagebrush, and Mormon tea. The vegetation on the Strych soils is mainly pinyon, Utah juniper, birchleaf mountainmahogany, and saline wildrye. Elevation is 5,000 to 8,000 feet. The average annual precipitation is 12 to 16 inches, the mean annual air temperature is 46 to 51 degrees F, and the frost-free period is 100 to 160 days.

This unit makes up about 15 percent of the survey area. It is about 35 percent Rizno soils, 20 percent Strych soils, 20 percent Rock outcrop, and 25 percent minor soils.

Rizno soils are on narrow mesas and structural benches. They are gently sloping and moderately steep, very shallow and shallow, and well drained. They formed in eolian material and residuum derived dominantly from sandstone. They are loamy and are underlain by sandstone bedrock at a depth of 4 to 20 inches. Typically, the surface layer is light reddish brown fine sandy loam about 5 inches thick. The underlying material also is light reddish brown fine sandy loam. It is about 14 inches thick. Sandstone bedrock is at a depth of about 19 inches.

Strych soils are on hillsides. They are moderately steep to very steep, very deep, and well drained. They formed in colluvium derived dominantly from sandstone and shale. They are stony and are underlain by sandstone or shale bedrock at a depth of more than 60 inches. Typically, the surface layer is reddish brown extremely bouldery fine sandy loam about 8 inches thick. The underlying material to a depth of more than 60 inches is reddish yellow and yellowish red very stony fine sandy loam and extremely stony fine sandy loam.

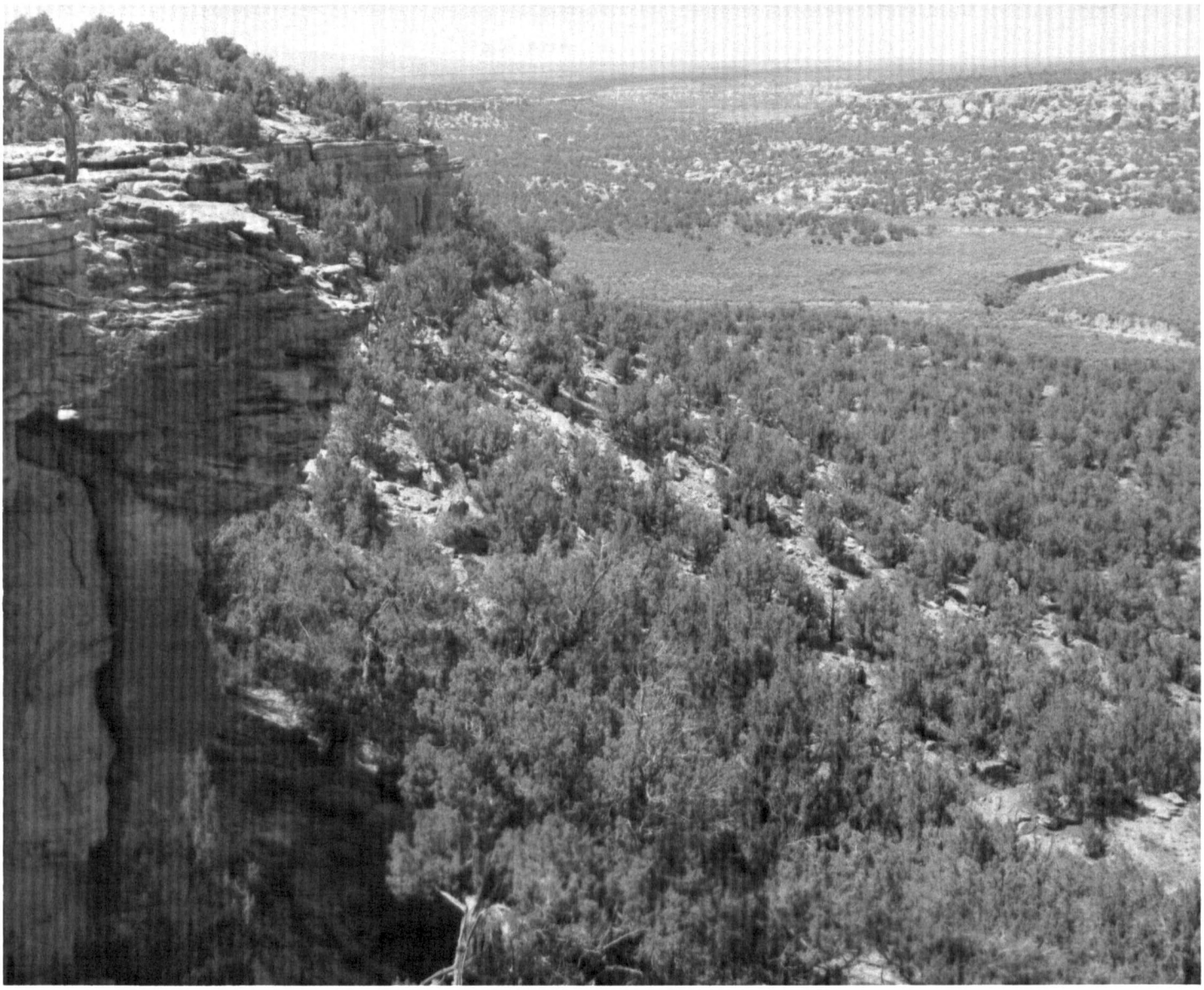

Figure 6.—An area of the Rizno-Strych-Rock outcrop general soil map unit on mesas, structural benches, and hillsides. The very deep Barx soils are in the valley in the background.

The Rock outcrop occurs as cliffs and ledges of exposed sandstone.

Of minor extent in this unit are Bodot soils on steep hillsides, Barx and Cahona soils on mesas, Bookcliff soils on north-facing mountainsides, Skos soils on ledges below the areas of Rock outcrop, and Redbank family soils along stream channels.

This unit is used for rangeland, wildlife habitat, or recreation.

This unit provides wildlife habitat of low to moderate quality. The areas of greatest value are along canyon floors where water is available during winter, spring, and late summer and where forage and cover are nearby. It is of greatest value to mule deer in areas where pinyon, Utah juniper, birchleaf mountainmahogany, and other shrubs are near the Wyoming big sagebrush plant communities. These areas provide both cover and forage. Small mammals, such as chipmunks, rock squirrels, shrews, mice, and packrats, inhabit the steep slopes of the canyons.

Raptors hunt in areas of this unit and roost in the canyon walls. Bobcats, coyote, and foxes use areas of this unit for hunting and as travel corridors.

11. Skos-Strych-Bookcliff

Very shallow, shallow, deep, or very deep, well drained, gently sloping to very steep soils; mainly on structural benches and mountainsides

This map unit is in the northwestern part of the survey area. It is characterized by broad structural benches and steep mountainsides. Slopes range from 2 to 70 percent. The vegetation on the Bookcliff soils is mainly Gambel oak, mountain big sagebrush, snowberry, and Utah serviceberry. The vegetation on the Strych soils is mainly pinyon, Utah juniper, birchleaf mountainmahogany, and saline wildrye. The vegetation on the Skos soils is mainly pinyon, Utah juniper, and Bigelow sagebrush. Elevation is 7,000 to 8,900 feet. The average annual precipitation is 12 to 19 inches, the mean annual air temperature is 41 to 49 degrees F, and the frost-free period is 80 to 130 days.

This unit makes up about 2 percent of the survey area. It is about 35 percent Skos soils, 35 percent Strych soils, 20 percent Bookcliff soils, and 10 percent minor soils.

Skos soils are on structural benches. They are gently sloping and moderately steep, very shallow and shallow, and well drained. They formed in residuum and colluvium derived dominantly from sandstone. They are stony and are underlain by sandstone bedrock at a depth of 4 to 20 inches. Typically, the surface layer is brown channery fine sandy loam about 1 inch thick. The underlying material is reddish brown very channery sandy clay loam about 5 inches thick. Sandstone bedrock is at a depth of about 6 inches.

Strych soils are on mountainsides. They are moderately steep to very steep, very deep, and well drained. They formed in colluvium derived dominantly from sandstone and interbedded shale. The soils are stony and are underlain by sandstone or shale bedrock at a depth of more than 60 inches. Typically, the surface layer is reddish brown extremely bouldery fine sandy loam about 8 inches thick. The underlying material to a depth of more than 60 inches is yellowish red and reddish yellow very stony fine sandy loam and extremely stony fine sandy loam.

Bookcliff soils are on structural benches and mountainsides. They are gently sloping and moderately steep, deep, and well drained. They formed in alluvium derived dominantly from sandstone. They are loamy and are underlain by sandstone bedrock at a depth of 40 to 60 inches. Typically, the surface layer is reddish brown sandy loam about 2 inches thick. The subsoil is reddish brown loam and sandy clay loam about 18 inches thick. The underlying material is reddish brown sandy clay loam about 27 inches thick. Sandstone bedrock is at a depth of about 47 inches.

Of minor extent in this unit are Kiln soils on north-facing ledges and structural benches, Barx soils on structural benches at the lower elevations, and Redbank family soils along stream channels.

This unit is used for rangeland, wildlife habitat, or recreation.

This unit provides wildlife habitat of moderate to high quality. A variety of terrain and vegetation types provides both cover and forage. The unit is an important travel corridor for mule deer and predators from the Abajo Mountains to the sagebrush mesas and canyons. Shrubs on the slopes and mountain big sagebrush, Wyoming big sagebrush, and basin big sagebrush communities provide forage and cover for mule deer. The areas of greatest value to wildlife are near the springs and perennial streams. Bobcats, coyote, and raptors frequent areas of this unit.

Detailed Soil Map Units

The map units delineated on the detailed maps at the back of this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the heading "Use and Management of the Soils."

A map unit delineation on a map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some "included" areas that belong to other taxonomic classes.

Most included soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying layers, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying layers. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Trail fine sandy loam, 0 to 1 percent slopes, is a phase of the Trail series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or associations.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Mido-Rizno complex is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Bodot-Strych-Skos association is an example.

Some soils in this survey have not been classified at the series level of soil taxonomy and are identified as soil families. The *family* is the next higher level of classification within soil taxonomy. A reference pedon description indicates the general characteristics of these soils as they occur in the survey area. Interpretations made for these soils are broader than those made for a soil series. Oljeto family, 10 to 40 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rubble land-Rock outcrop complex is an example.

The descriptions, names, and delineations of the soils on the detailed soil maps in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The "Glossary" defines many of the terms used in describing the soils or miscellaneous areas.

Map Unit Descriptions

1—Arches-Rizno-Mido complex

Setting

Position on landscape: Structural benches
Slope range: 2 to 15 percent
Native plants: Shrubs and grasses
Elevation: 5,000 to 6,000 feet

Composition

Arches soil and similar inclusions: 35 percent
Rizno soil and similar inclusions: 30 percent
Mido soil and similar inclusions: 25 percent
Contrasting inclusions: 10 percent

Characteristics of the Arches Soil

Position on landscape: Edges of structural benches; intermixed with areas of the Mido soil
Slope features: Shape—plane or convex; length—5 to 15 feet
Typical profile:
0 to 18 inches—reddish yellow fine sand
18 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Rizno Soil

Position on landscape: Hillsides of structural benches surrounding mesas; intermixed with areas of Rock outcrop
Slope features: Shape—plane or convex; length—10 to 20 feet
Typical profile:
0 to 3 inches—light red fine sandy loam
3 to 18 inches—red fine sandy loam
18 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low or low
Water-supplying capacity: Very low or low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Mido Soil

Position on landscape: East- and northeast-facing slopes of structural benches
Slope features: Shape—concave; length—20 to 50 feet
Typical profile:
0 to 10 inches—red loamy fine sand
10 to 60 inches—red loamy fine sand
Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Low or moderate
Water-supplying capacity: Low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent Rock outcrop occurring as slickrock and as ledges at the edges of structural benches

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A severe hazard of wind erosion in disturbed areas and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 170 days

Rangeland

Range site:
Arches—Semidesert Shallow Sand (Blackbrush)
Rizno—Semidesert Shallow Sandy Loam (Blackbrush)
Mido—Semidesert Sand (Fourwing Saltbush)
Composition of the potential plant community:
Arches—25 percent grasses, 10 percent forbs, and 65 percent shrubs
Rizno—15 percent grasses, 5 percent forbs, and 80 percent shrubs
Mido—50 percent grasses, 15 percent forbs, and 35 percent shrubs
Important plants:
Arches—blackbrush, Indian ricegrass, and Mormon tea
Rizno—blackbrush, galleta, and Torrey Mormon tea
Mido—Indian ricegrass, Mormon tea, needleandthread, fourwing saltbush, and sandhill muhly
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation, the limited depth to bedrock, and the severe hazard of wind erosion.
• Trafficability over unsurfaced roads is poor because of a sandy texture.
• Disturbed areas are subject to severe wind erosion.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, fourwing saltbush, Indian ricegrass, sand dropseed, and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

2—Badland-Rock outcrop complex

Setting

Position on landscape: Edge of structural benches and hillsides
Elevation: 4,000 to 5,300 feet

Composition

Badland: 60 percent
Rock outcrop: 20 percent
Contrasting inclusions: 20 percent

Characteristics of Badland

• Badland consists of steep and very steep, nearly barren areas of actively eroding shale. It is dissected by many narrow drainage channels. Runoff is very rapid.

Characteristics of Rock Outcrop

• Rock outcrop consists of bare exposures of bedrock on ledges and nearly vertical cliffs.

Contrasting Inclusions

• About 10 percent shallow, loamy soils that are on benches and ledges and that support blackbrush, shadscale, and galleta
• About 10 percent very deep, loamy, salt-affected soils that are in drainageways and that support black greasewood and shadscale

Land Capability Classification

Capability class: VIII

3—Bankard family-Riverwash complex

Setting

Position on landscape: Flood plains
Slope range: 0 to 4 percent
Native plants: Shrubs and grasses
Elevation: 4,300 to 4,800 feet

Composition

Bankard family soils and similar inclusions: 50 percent
Riverwash: 35 percent
Contrasting inclusions: 15 percent

Characteristics of the Bankard Family Soils

Position on landscape: Stream channels; intermixed with areas of Riverwash
Slope range: 0 to 4 percent
Slope features: Shape—plane; length—20 to 40 feet
Typical profile:
0 to 12 inches—strong brown fine sandy loam
12 to 60 inches—stratified strong brown and brown loamy fine sand and loamy sand with thin lenses of sandy clay loam

Content of rock fragments: 0 to 25 percent, chiefly pebbles and cobbles
Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid
Available water capacity: Low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Very slow
Hazard of water erosion: Slight, except in areas directly adjacent to stream channels, which are subject to severe gully erosion
Hazard of wind erosion: Severe
Flooding: Occasional, very brief, during prolonged high-intensity storms in the period March through September

Characteristics of Riverwash

• Riverwash consists of sandy and loamy material that has varying amounts of gravel and cobbles. It has been reworked by streams so frequently that it supports little or no vegetation. It is in stream channels and is frequently flooded for brief periods during prolonged high-intensity storms at any time of the year.

Contrasting Inclusions

• About 10 percent somewhat poorly drained, loamy soils that are on flood plains and that support saltcedar and cottonwood
• About 5 percent very deep, loamy soils that are on stream terraces that support basin big sagebrush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The hazard of flooding

Climate-related factors

Average annual precipitation: 6 to 9 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 150 to 180 days

Rangeland

Bankard family

Range site: Alkali Bottom (Black Greasewood)
Composition of the potential plant community: 30 percent grasses, 10 percent forbs, and 60 percent shrubs
Important plants: Alkali sacaton, seepweed, and black greasewood
General management considerations:
• The suitability for range seeding is poor because of the low annual precipitation.
• Trafficability over unsurfaced roads is only fair because of the frequency of flooding and the deep gullies and stream channels.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Land Capability Classification

Capability subclass: Bankard family soils—VIs, nonirrigated; IVs, irrigated

4—Bankard family-Sheppard complex

Setting

Position on landscape: Flood plains and canyon floors
Slope range: 0 to 15 percent
Native plants: Shrubs and grasses
Elevation: 4,000 to 5,000 feet

Composition

Bankard family soils and similar inclusions: 60 percent
Sheppard soil and similar inclusions: 25 percent
Contrasting inclusions: 15 percent

Characteristics of the Bankard Family Soils

Position on landscape: Flood plains
Slope range: 0 to 4 percent
Slope features: Shape—plane; length—20 to 40 feet
Typical profile:
0 to 6 inches—red fine sandy loam
6 to 60 inches—red, stratified loamy fine sand, gravelly loamy fine sand, and fine sandy loam
Content of rock fragments: 0 to 25 percent, chiefly pebbles and cobbles
Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid
Available water capacity: Low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Very slow
Hazard of water erosion: Slight, except in areas directly adjacent to stream channels, which are subject to severe gully erosion
Hazard of wind erosion: Severe
Flooding: Occasional, very brief, during prolonged high-intensity storms in the period March through September

Characteristics of the Sheppard Soil

Position on landscape: Eolian fans on structural benches along canyon floors
Slope range: 2 to 15 percent
Slope features: Shape—convex; length—10 to 20 feet

Typical profile:
0 to 6 inches—light red loamy fine sand
6 to 60 inches—light red loamy fine sand
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Rapid
Available water capacity: Low or moderately low
Water-supplying capacity: Low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 5 percent Riverwash in stream channels
• About 5 percent shallow soils that are on ledges and that support shadscale and grasses
• About 5 percent Rock outcrop

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

Occasional flooding for brief periods in areas of the Bankard family soils; a severe hazard of wind erosion in disturbed areas of the Bankard family and Sheppard soils

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 150 to 200 days

Rangeland

Range site:
Bankard family—Sandy Bottom (Fourwing Saltbush)
Sheppard—Desert Sand (Sand Sagebrush)
Composition of the potential plant community:
Bankard family—60 percent grasses, 10 percent forbs, and 30 percent shrubs
Sheppard—55 percent grasses, 15 percent forbs, and 30 percent shrubs
Important plants:
Bankard family—Indian ricegrass, galleta, fourwing saltbush, and sand dropseed
Sheppard—Indian ricegrass, sandhill muhly, sand dropseed, and sand sagebrush
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation and the severe hazard of wind erosion.
• Trafficability over unsurfaced roads is poor because of the sandy texture and the hazard of flooding along stream channels.
• Disturbed areas are subject to severe wind erosion.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, Indian ricegrass, spike dropseed, prostrate kochia, and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

5—Barx very fine sandy loam, 1 to 4 percent slopes

Setting

Position on landscape: Mesas and structural benches
Slope features: Shape—smooth; length—40 to 80 feet
Native plants: Shrubs and grasses
Elevation: 5,800 to 7,800 feet

Characteristics of the Barx Soil

Typical profile:
0 to 3 inches—reddish brown very fine sandy loam
3 to 9 inches—reddish brown fine sandy loam
9 to 36 inches—reddish brown and reddish yellow sandy clay loam
36 to 60 inches—pink sandy clay loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderately high or high
Water-supplying capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent moderately deep, loamy soils that are near ridgetops and that support Wyoming big sagebrush
• About 5 percent shallow, loamy soils that are on ridgetops and that support pinyon and Utah juniper
• About 5 percent very deep, loamy soils that are on dissected hillsides and that support pinyon and Utah juniper

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The severe hazard of wind erosion

Climate-related factors

Average annual precipitation: 12 to 16 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 100 to 140 days

Rangeland

Range site: Upland Loam (Basin Big Sagebrush)
Composition of the potential plant community: 60 percent grasses, 5 percent forbs, and 35 percent shrubs
Important plants: Wyoming big sagebrush, Indian ricegrass, needleandthread, and blue grama
General management considerations:
• The suitability for range seeding is only fair because of the moderate or moderately high water-supplying capacity and the severe hazard of wind erosion.
• Pinyon and Utah juniper can invade in areas where the potential plant community has been depleted.
• Trafficability over unsurfaced roads is only fair because of the susceptibility to rutting during wet periods.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• Brush can be controlled by prescribed burning, chemical treatment, and mechanical treatment.
• Plants suitable for seeding include adapted native plants, intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, alfalfa, small burnet, and prostrate kochia.

Land Capability Classification

Capability subclass: IVe, nonirrigated

6—Barx-Strych-Skos complex

Setting

Position on landscape: Mountainsides and structural benches
Slope range: 4 to 50 percent
Native plants: Trees, shrubs, and grasses
Elevation: 7,000 to 7,600 feet

Composition

Barx soil and similar inclusions: 35 percent
Strych soil and similar inclusions: 25 percent
Skos soil and similar inclusions: 20 percent
Contrasting inclusions: 20 percent

Characteristics of the Barx Soil

Position on landscape: Hillsides of structural benches; intermixed with and downslope from areas of the Strych soil
Slope range: 4 to 10 percent
Slope features: Shape—concave; length—20 to 40 feet
Typical profile:
0 to 9 inches—brown very fine sandy loam
9 to 32 inches—strong brown and yellowish red sandy clay loam
32 to 60 inches—yellowish red and light reddish brown sandy clay loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderately high or high
Water-supplying capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Strych Soil

Position on landscape: Steep mountainsides and hillsides of structural benches; above areas of the Barx soil and intermixed with areas of the Skos soil
Slope range: 20 to 50 percent
Slope features: Shape—convex; length—10 to 30 feet
Typical profile:
0 to 8 inches—reddish brown extremely bouldery fine sandy loam
8 to 24 inches—yellowish red very stony fine sandy loam
24 to 60 inches—reddish yellow extremely stony fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Water-supplying capacity: Moderately low to moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Skos Soil

Position on landscape: Ledges of structural benches; intermixed with areas of the Strych soil
Slope range: 4 to 30 percent
Slope features: Shape—convex; length—2 to 10 feet

Typical profile:
0 to 2 inches—brown channery fine sandy loam
2 to 13 inches—strong brown very gravelly clay loam
13 inches—sandstone bedrock
Depth class: Very shallow or shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Water-supplying capacity: Very low or low
Potential rooting depth: 4 to 20 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Contrasting Inclusions

• About 15 percent very deep, loamy soils that are on steep mountainsides and that support Gambel oak
• About 5 percent very deep, clayey soils that are in basins and that support Wyoming big sagebrush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope, a limited depth to bedrock, and a high content of rock fragments

Climate-related factors

Average annual precipitation: 12 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 90 to 130 days

Rangeland

Barx

Range site: Upland Loam (Basin Big Sagebrush)
Composition of the potential plant community: 60 percent grasses, 5 percent forbs, and 35 percent shrubs
Important plants: Wyoming big sagebrush, Indian ricegrass, needleandthread, and blue grama

Woodland

Strych

Woodland site: Upland Steep Stony Loam (Pinyon-Utah Juniper)
Overstory canopy: 20 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 40 percent grasses, 5 percent forbs, and 55 percent shrubs
Important plants: Saline wildrye, Indian ricegrass, green Mormon tea, and birchleaf mountainmahogany
Site index: 75 for pinyon and Utah juniper
Average productivity: Medium
Average yield per acre: 9 cords
Potential for post or Christmas tree production: Fair

Skos

Woodland site: Upland Shallow Loam (Pinyon-Utah Juniper)
Overstory canopy: 25 to 35 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 10 percent grasses, 10 percent forbs, and 80 percent shrubs
Important plants: Indian ricegrass, Bigelow sagebrush, and Mormon tea
Site index: 40 for pinyon and Utah juniper
Average productivity: Low
Average yield per acre: 4.5 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is poor because of the slope, a limited depth to bedrock, a limited available water capacity, and rock fragments on the surface.
• Trafficability over unsurfaced roads is poor because of the slope, the complex topography, and large stones and boulders on the surface.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• Properly designed road drainage systems that include culverts can help to control erosion.
• To control erosion in disturbed areas, pubescent wheatgrass, crested wheatgrass, alfalfa, small burnet, prostrate kochia, and other suitable native plants can be seeded.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

7—Bluechief-Limeridge-Nakai complex, 1 to 6 percent slopes

Setting

Position on landscape: Structural benches and fan terraces
Native plants: Shrubs and grasses
Elevation: 4,600 to 5,600 feet

Composition

Bluechief soil and similar inclusions: 40 percent
Limeridge soil and similar inclusions: 30 percent
Nakai soil and similar inclusions: 20 percent
Contrasting inclusions: 10 percent

Characteristics of the Bluechief Soil

Position on landscape: Structural benches; intermixed

with areas of the Limeridge and Nakai soils
Slope range: 2 to 6 percent
Slope features: Shape—plane or convex; length—20 to 40 feet
Typical profile:
0 to 2 inches—yellowish red fine sandy loam
2 to 15 inches—yellowish red fine sandy loam
15 to 26 inches—reddish yellow and pink fine sandy loam
26 inches—limestone bedrock
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low
Water-supplying capacity: Low
Potential rooting depth: 20 to 40 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Characteristics of the Limeridge Soil

Position on landscape: Edges of structural benches and south-facing slopes; intermixed with areas of the Bluechief soil
Slope range: 2 to 6 percent
Slope features: Shape—plane or convex; length—5 to 15 feet
Typical profile:
0 to 3 inches—yellowish red fine sandy loam
3 to 19 inches—yellowish red fine sandy loam
19 inches—cemented hardpan
Depth class: Shallow to hardpan
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low or low
Water-supplying capacity: Very low or low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Nakai Soil

Position on landscape: East- and northeast-facing structural benches and fan terraces
Slope range: 1 to 6 percent
Slope features: Shape—concave; length—20 to 40 feet
Typical profile:
0 to 2 inches—reddish yellow fine sandy loam
2 to 28 inches—reddish yellow fine sandy loam
28 to 44 inches—reddish yellow and pink fine sandy loam
44 inches—cemented hardpan
Depth class: Deep or very deep to hardpan
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderately low or moderate
Water-supplying capacity: Low or moderately low
Potential rooting depth: More than 40 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Included Areas

Similar inclusions:
• Soils that are similar to the Bluechief soil but are 40 to 60 inches deep over limestone or sandstone bedrock
• Shallow soils that are similar to the Limeridge soil but are on steeper slopes
• Soils that are similar to the Nakai soil but are more than 60 inches deep over bedrock
Contrasting inclusions:
• About 10 percent very deep, sandy soils that are in draws and on northeast-facing ridges and that support sand sagebrush and Indian ricegrass

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The severe hazard of wind erosion and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 160 to 180 days

Rangeland

Range site:
Bluechief—Desert Sandy Loam (Blackbrush)
Limeridge—Desert Shallow Sandy Loam (Blackbrush)
Nakai—Desert Sandy Loam (Fourwing Saltbush)
Composition of the potential plant community:
Bluechief—45 percent grasses, 10 percent forbs, and 45 percent shrubs
Limeridge—20 percent grasses, 5 percent forbs, and 75 percent shrubs
Nakai—65 percent grasses, 10 percent forbs, and 25 percent shrubs
Important plants:
Bluechief—blackbrush, Mormon tea, Indian ricegrass, and galleta
Limeridge—blackbrush, galleta, Indian ricegrass, and Mormon tea

Nakai—Indian ricegrass, galleta, fourwing saltbush, and dropseed
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation, the restricted available water capacity, and the severe hazard of wind erosion.
• Trafficability over unsurfaced roads is good.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control wind erosion in disturbed areas, prostrate kochia and other adapted native plants can be seeded.

Land Capability Classification

Capability subclass: VIIe, nonirrigated

8—Bodot-Strych-Skos association

Setting

Position on landscape: Structural benches and hillsides
Slope range: 4 to 50 percent
Native plants: Trees, shrubs, and grasses
Elevation: 5,500 to 7,400 feet

Composition

Bodot soil and similar inclusions: 25 percent
Strych soil and similar inclusions: 25 percent
Skos soil and similar inclusions: 25 percent
Contrasting inclusions: 25 percent

Characteristics of the Bodot Soil

Position on landscape: Old slumps on hillsides
Slope range: 20 to 50 percent
Slope features: Shape—concave; length—10 to 20 feet
Typical profile:
0 to 3 inches—pale brown very stony sandy clay loam
3 to 14 inches—pale brown sandy clay loam
14 to 29 inches—light yellowish brown sandy clay loam
29 to 38 inches—light gray clay
38 inches—weathered shale bedrock
Content of rock fragments: 35 to 60 percent in the surface layer
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderate
Water-supplying capacity: Moderate or moderately high
Potential rooting depth: 20 to 40 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Severe
Hazard of wind erosion: Slight

Characteristics of the Strych Soil

Position on landscape: Steep hillsides and mountainsides
Slope range: 20 to 50 percent
Slope features: Shape—convex; length—10 to 30 feet
Typical profile:
0 to 8 inches—reddish brown extremely bouldery fine sandy loam
8 to 24 inches—yellowish red very stony fine sandy loam
24 to 60 inches—reddish yellow extremely stony fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Water-supplying capacity: Moderately low to moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Skos Soil

Position on landscape: South-facing ledges of structural benches above the Bodot and Strych soils
Slope range: 4 to 30 percent
Slope features: Shape—convex; length—2 to 10 feet
Typical profile:
0 to 2 inches—brown channery fine sandy loam
2 to 13 inches—strong brown very gravelly clay loam
13 inches—sandstone bedrock
Depth class: Very shallow or shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Water-supplying capacity: Very low or low
Potential rooting depth: 4 to 20 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Contrasting Inclusions

• About 10 percent very deep, loamy soils that are on sloping alluvial fans and along drainageways and that support Wyoming big sagebrush
• About 5 percent very deep, dark, loamy soils that are on north-facing hillsides and that support Gambel oak
• About 5 percent very deep, very stony soils that are

on very steep slopes and that support pinyon and shrubs
• About 5 percent Rock outcrop occurring as cliffs and ledges

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A high content of rock fragments, a high content of clay, and the slope

Climate-related factors

Average annual precipitation: 12 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 90 to 130 days

Woodland

Woodland site:
Bodot and Strych—Upland Steep Stony Loam (Pinyon-Utah Juniper)
Skos—Upland Shallow Loam (Pinyon-Utah Juniper)
Overstory canopy:
Bodot and Strych—20 percent, consisting of pinyon and Utah juniper
Skos—25 to 35 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation:
Bodot and Strych—40 percent grasses, 5 percent forbs, and 55 percent shrubs
Skos—10 percent grasses, 10 percent forbs, and 80 percent shrubs
Important plants:
Bodot and Strych—saline wildrye, green Mormon tea, Indian ricegrass, and birchleaf mountainmahogany
Skos—Indian ricegrass, Bigelow sagebrush, and Mormon tea
Site index:
Bodot and Strych—75 for pinyon and Utah juniper
Skos—40 for pinyon and Utah juniper
Average productivity:
Bodot and Strych—medium
Skos—low
Average yield per acre:
Bodot and Strych—9 cords
Skos—4.5 cords
Potential for post or Christmas tree production:
Bodot and Strych—fair
Skos—poor

General Management Considerations

• The suitability for range seeding is very poor because of the slope, a high content of rock fragments on the surface, and a limited depth to bedrock.
• Trafficability over unsurfaced roads is poor because of the slope, the complex topography, boulders and stones, and the clayey subsoil of the Bodot soil.
• The Bodot soil is a possible source of clay material for sealing ponds and embankments. Disturbed areas are difficult to reclaim.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• Properly designed road drainage systems that include culverts can help to control erosion.
• To control erosion in disturbed areas, pubescent wheatgrass, crested wheatgrass, alfalfa, small burnet, prostrate kochia, and other suitable native plants can be seeded.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

9—Bookcliff-Bookcliff, dry, complex

Setting

Position on landscape: Mountainsides and structural benches
Slope range: 2 to 30 percent
Native plants: Shrubs and grasses
Elevation: 8,000 to 8,900 feet

Composition

Bookcliff soil and similar inclusions: 40 percent
Bookcliff, dry, soil and similar inclusions: 35 percent
Contrasting inclusions: 25 percent

Characteristics of the Bookcliff Soil

Position on landscape: Basins on mountainsides and benches
Slope range: 2 to 15 percent
Slope features: Shape—concave; length—20 to 40 feet
Typical profile:
0 to 8 inches—reddish brown sandy loam
8 to 15 inches—reddish brown loam
15 to 33 inches—reddish brown sandy clay loam
33 to 47 inches—reddish brown sandy clay loam
47 inches—sandstone bedrock
Depth class: Deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate or moderately high
Water-supplying capacity: Moderately high or high
Potential rooting depth: 40 to 60 inches
Organic matter content in the surface layer: Moderate
Runoff: Medium

Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate

Characteristics of the Bookcliff, Dry, Soil

Position on landscape: Benches and mountainsides above the Bookcliff soil
Slope range: 3 to 30 percent
Slope features: Shape—convex; length—20 to 40 feet
Typical profile:
0 to 14 inches—brown loam
14 to 23 inches—brown and grayish brown clay loam
23 to 44 inches—yellowish brown and light gray clay loam
44 inches—sandstone bedrock
Depth class: Deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate or moderately high
Water-supplying capacity: Moderately high or high
Potential rooting depth: 40 to 60 inches
Organic matter content in the surface layer: Moderate
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate

Contrasting Inclusions

• About 10 percent shallow, loamy soils that have a dark surface layer and that support big sagebrush
• About 10 percent deep, dark, stony soils that are on steep mountainsides and that support Gambel oak
• About 5 percent deep, dark, clayey soils that are on benches and that support ponderosa pine

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope

Climate-related factors

Average annual precipitation: 16 to 19 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 80 to 100 days

Rangeland

Range site:
Bookcliff—Mountain Loam (Mountain Big Sagebrush)
Bookcliff, dry—Mountain Loam (Oak)
Composition of the potential plant community:
Bookcliff—60 percent grasses, 10 percent forbs, and 30 percent shrubs
Bookcliff, dry—35 percent grasses, 10 percent forbs, and 55 percent shrubs
Important plants:
Bookcliff—bluegrass, wheatgrass, needleandthread, mountain brome, mountain big sagebrush, and snowberry
Bookcliff, dry—Gambel oak, bluegrass, snowberry, and Utah serviceberry
General management considerations:
• The suitability for range seeding is only fair because of the moderately steep slopes.
• Trafficability over unsurfaced roads is only fair because of slickness and rutting during wet periods.
• Brush management can improve deteriorated areas of range that are producing more woody shrubs than would be present in the potential plant community. Gambel oak is difficult to eradicate.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• Brush can be controlled by prescribed burning, chemical treatment, and mechanical treatment.
• To control erosion in disturbed areas, intermediate wheatgrass, smooth brome, slender wheatgrass, alfalfa, orchardgrass, and other suitable native plants can be seeded. Preparing a seedbed on the contour or across the slope can reduce the hazard of erosion.
• Properly designed road drainage systems that include culverts can help to control erosion.

Land Capability Classification

Capability subclass: VIe, nonirrigated

10—Bookcliff-Skos-Strych complex

Setting

Position on landscape: Mountainsides and structural benches
Slope range: 3 to 70 percent
Native plants: Trees, shrubs, and grasses
Elevation: 7,500 to 8,900 feet

Composition

Bookcliff soil and similar inclusions: 45 percent
Skos soil and similar inclusions: 20 percent
Strych soil and similar inclusions: 20 percent
Contrasting inclusions: 15 percent

Characteristics of the Bookcliff Soil

Position on landscape: Mountainsides; on all aspects above 8,000 feet and on north aspects below 8,000 feet
Slope range: 3 to 30 percent
Slope features: Shape—concave; length—20 to 40 feet

Typical profile:
0 to 14 inches—brown loam
14 to 23 inches—brown and grayish brown clay loam
23 to 44 inches—yellowish brown and light gray clay loam
44 inches—sandstone bedrock
Depth class: Deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderate or moderately high
Water-supplying capacity: Moderately high or high
Potential rooting depth: 40 to 60 inches
Organic matter content in the surface layer: Moderate
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate

Characteristics of the Skos Soil

Position on landscape: South-facing ledges of structural benches and mountainsides near areas of Rock outcrop
Slope range: 4 to 30 percent
Slope features: Shape—convex; length—2 to 10 feet
Typical profile:
0 to 2 inches—brown channery fine sandy loam
2 to 13 inches—strong brown very gravelly clay loam
13 inches—sandstone bedrock
Depth class: Very shallow and shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Water-supplying capacity: Very low or low
Potential rooting depth: 4 to 20 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Strych Soil

Position on landscape: Steep mountainsides; on south aspects above 8,000 feet and on all aspects below 8,000 feet
Slope range: 50 to 70 percent
Slope features: Shape—convex; length—2 to 10 feet
Typical profile:
0 to 12 inches—reddish brown very stony fine sandy loam
12 to 16 inches—reddish brown very cobbly fine sandy loam
16 to 60 inches—yellowish red very cobbly fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Water-supplying capacity: Moderately low or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Contrasting Inclusions

• About 5 percent shallow, dark, loamy soils that are on ledges and that support ponderosa pine
• About 5 percent deep, dark, loamy soils that are on very steep, north-facing slopes and that support Douglas fir
• About 5 percent Rock outcrop occurring as cliffs and ledges

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope, a limited depth to bedrock, and a high content of rock fragments

Climate-related factors

Average annual precipitation: 12 to 19 inches
Mean annual air temperature: 41 to 49 degrees F
Frost-free period: 80 to 130 days

Rangeland

Bookcliff

Range site: Mountain Loam (Oak)
Composition of the potential plant community: 35 percent grasses, 10 percent forbs, and 55 percent shrubs
Important plants: Gambel oak, bluegrass, snowberry, and Utah serviceberry

Woodland

Skos

Woodland site: Upland Shallow Loam (Pinyon-Utah Juniper)
Overstory canopy: 25 to 35 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 10 percent grasses, 10 percent forbs, and 80 percent shrubs
Important plants: Indian ricegrass, Bigelow sagebrush, and Mormon tea
Site index: 40 for pinyon and Utah juniper
Average productivity: Low
Average yield per acre: 4.5 cords
Potential for post or Christmas tree production: Poor

Strych

Woodland site: Upland Very Steep Stony Loam (Pinyon-Utah Juniper)
Overstory canopy: 25 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 45 percent grasses, 5 percent forbs, and 50 percent shrubs
Important plants: Saline wildrye, Utah serviceberry, Indian ricegrass, and birchleaf mountainmahogany
Site index: 27 for pinyon and Utah juniper
Average productivity: Moderately low
Average yield per acre: 3 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is very poor because of the slope, a limited depth to bedrock, and a high content of rock fragments.
• Trafficability over unsurfaced roads is poor because of large stones and boulders on the surface and the complex topography.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, intermediate wheatgrass, smooth brome, regar brome, slender wheatgrass, alfalfa, orchardgrass, and other native plants can be seeded.
• Properly designed road drainage systems that include culverts can help to control erosion.

Land Capability Classification

Capability subclass: VIIe, nonirrigated

11—Cahona very fine sandy loam, 1 to 8 percent slopes

Setting

Position on landscape: Mesas
Slope features: Shape—plane or convex; length—80 to 100 feet
Native plants: Shrubs and grasses
Elevation: 5,800 to 7,000 feet

Characteristics of the Cahona Soil

Typical profile:
0 to 3 inches—reddish brown very fine sandy loam
3 to 27 inches—yellowish red and reddish yellow sandy clay loam
27 to 60 inches—pink loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderately high
Water-supplying capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent moderately deep, silty soils that support Wyoming big sagebrush
• About 5 percent shallow, loamy soils that are on ridgetops and near the edge of mesas and that support pinyon and Utah juniper

Major Current Uses

Nonirrigated cropland, rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A severe hazard of wind erosion in disturbed areas

Climate-related factors

Average annual precipitation: 12 to 15 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 140 days

Rangeland

Range site: Upland Loam (Basin Big Sagebrush)
Composition of the potential plant community: 60 percent grasses, 5 percent forbs, and 35 percent shrubs
Important plants: Wyoming big sagebrush, Indian ricegrass, needleandthread, and blue grama
General management considerations:
• The suitability for range seeding is good.
• Pinyon and Utah juniper can invade in areas where the potential plant community has been depleted.
• Trafficability over unsurfaced roads is only fair because of the susceptibility to rutting during wet periods.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• Brush can be controlled by prescribed burning, chemical treatment, and mechanical treatment.
• Plants suitable for seeding include adapted native plants, intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, alfalfa, small burnet, and prostrate kochia.

Cropland

General management considerations:
• Winter wheat and pinto beans are the principal

nonirrigated crops. Other crops are dryland alfalfa and spring wheat.
• Expected average annual yields per acre under a high level of management are 25 to 30 bushels of winter wheat, 15 to 20 bushels of spring wheat, 500 to 800 pounds of pinto beans, and 1.5 to 2.0 tons of alfalfa.
• Pinto beans can be planted each year, but the annual precipitation is not sufficient for yearly cropping of wheat.
• The main limitations in areas used for nonirrigated crops are droughtiness and the hazard of erosion.
Suitable management practices:
• A suitable crop rotation in areas where slopes are 1 to 5 percent is 5 or 6 years of pinto beans and 3 or 4 years of winter wheat.
• Pinto beans should not be planted in areas where slopes are more than 5 percent because of the hazard of erosion.
• Planting dryland alfalfa or winter wheat or establishing a permanent cover of grasses helps to control sheet, rill, and gully erosion on the steeper slopes.
• Summer fallow, reduced or limited tillage, or no-till cropping helps to control water erosion and wind erosion and conserves moisture.
• Wind erosion can be controlled by returning crop residue to the soil, by stripcropping, and by roughening the surface during critical periods.

Land Capability Classification

Capability subclass: IVe, nonirrigated

12—Gilco silt loam, 0 to 1 percent slopes

Setting

Position on landscape: Stream terraces
Slope features: Shape—plane; length—more than 300 feet
Native plants: Shrubs and grasses
Elevation: 4,300 to 4,400 feet

Characteristics of the Gilco Soil

Typical profile:
0 to 11 inches—brown silt loam
11 to 45 inches—light yellowish brown fine sandy loam and very fine sandy loam that has thin strata of silty clay loam
45 to 60 inches—very pale brown loamy fine sand that has thin strata of silty clay loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Flooding: Rare

Contrasting Inclusions

• About 5 percent very deep, sandy soils that are on stream terraces and that support Fremont cottonwood and saltcedar
• About 5 percent very deep, loamy soils that have a surface layer of silty clay and that are on stream terraces
• About 5 percent very deep, loamy soils that have a substratum of silty clay and that are on stream terraces

Major Current Uses

Irrigated cropland, rangeland, recreation, and homesite development

Major Management Factors

Soil-related factors

The moderate hazard of wind erosion and the available water capacity

Climate-related factors

Average annual precipitation: 7 to 8 inches
Mean annual air temperature: 54 to 56 degrees F
Frost-free period: 170 to 180 days

Rangeland

Range site: Loamy Bottom (Basin Big Sagebrush)
Composition of the potential plant community: 55 percent grasses, 5 percent forbs, and 40 percent shrubs
Important plants: Basin big sagebrush, blue grama, western wheatgrass, and fourwing saltbush

Cropland

General management considerations:
• The principal irrigated crops are alfalfa, small grain, and pasture.
• Average annual yields per acre under a high level of management are 8 tons of alfalfa, 100 bushels of oats or barley, and 8 animal unit months of pasture.
Suitable management practices:
• A suitable crop rotation is one that includes 5 or 6 years of alfalfa and 2 or 3 years of small grain.
• Furrow, level border, corrugation, and sprinkler irrigation systems are suitable. The method used generally depends on the crop that is grown.
• To prevent overirrigation and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the needs of the crop.
• Leaving crop residue on or near the surface conserves moisture and helps to maintain tilth and control erosion.

Urban development

General management considerations:
• The main limitations are rare flooding, the hazard of wind erosion, and rapid permeability in the underlying layers.
• Excavating for houses and access roads exposes material that is highly susceptible to wind erosion.
• Cutbanks are not stable and are subject to slumping.
Suitable management practices:
• In disturbed areas on construction sites, revegetating as soon as possible helps to control wind erosion.
• If the density of housing is moderate or high, community sewage systems are needed to prevent the contamination of water supplies caused by seepage from onsite sewage disposal systems.

Land Capability Classification

Capability subclass: IIc, irrigated; VIIc, nonirrigated

13—Gilco silty clay loam, 0 to 1 percent slopes

Setting

Position on landscape: Stream terraces
Slope features: Shape—plane; length—more than 300 feet
Native plants: Shrubs and grasses
Elevation: 4,300 to 4,400 feet

Characteristics of the Gilco Soil

Typical profile:
0 to 15 inches—brown silty clay loam
15 to 60 inches—stratified, light yellowish brown fine sandy loam and very fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Slight
Hazard of wind erosion: Moderate
Flooding: Rare

Contrasting Inclusions

• About 5 percent very deep, sandy soils that are on stream terraces and that support saltcedar and Fremont cottonwood
• About 5 percent very deep, silty and clayey soils that are on stream terraces and that support saltcedar and Fremont cottonwood

Major Current Uses

Irrigated cropland, rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The moderate hazard of wind erosion and a slow intake rate in irrigated areas

Climate-related factors

Average annual precipitation: 7 to 8 inches
Mean annual air temperature: 54 to 56 degrees F
Frost-free period: 170 to 180 days

Rangeland

Range site: Loamy Bottom (Basin Big Sagebrush)
Composition of the potential plant community: 55 percent grasses, 5 percent forbs, and 40 percent shrubs
Important plants: Basin big sagebrush, blue grama, western wheatgrass, and fourwing saltbush
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Cropland

General management considerations:
• The principal irrigated crops are alfalfa, small grain, and pasture.
• Average annual yields per acre under a high level of management are 8 tons of alfalfa, 100 bushels of oats or barley, and 8 animal unit months of pasture.
Suitable management practices:
• A suitable crop rotation is one that includes 5 or 6 years of alfalfa and 2 or 3 years of small grain.
• Border, corrugation, and sprinkler irrigation systems are suitable. The method used generally depends on the crop that is grown.
• To prevent overirrigation and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the needs of the crop.
• Leaving crop residue on or near the surface conserves moisture and helps to maintain tilth and control erosion.

Urban development

General management considerations:
• The main limitations are rare flooding, the hazard of wind erosion, and the moderate permeability.
• In places excavating for houses and access roads exposes material that is highly susceptible to wind erosion.

Suitable management practices:
• In disturbed areas on construction sites, revegetating as soon as possible helps to control wind erosion.
• If the density of housing is moderate or high, community sewage systems are needed to prevent the contamination of water supplies caused by seepage from onsite sewage disposal systems.

Land Capability Classification

Capability subclass: IIc, irrigated; VIIc, nonirrigated

14—Gilco-Trail complex, 0 to 2 percent slopes

Setting

Position on landscape: Stream terraces and flood plains
Native plants: Shrubs and grasses
Elevation: 4,300 to 5,000 feet

Composition

Gilco soil and similar inclusions: 60 percent
Trail soil and similar inclusions: 20 percent
Contrasting inclusions: 20 percent

Characteristics of the Gilco Soil

Position on landscape: Stream terraces above the Trail soil
Slope range: 0 to 2 percent
Slope features: Shape—plane; length—100 to 200 feet
Typical profile:
0 to 7 inches—light brown fine sandy loam
7 to 47 inches—stratified, light yellowish brown fine sandy loam and very fine sandy loam
47 to 60 inches—very pale brown loamy fine sand
Special profile features: Thin strata of silty clay loam between depths of 40 and 60 inches
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Slight
Hazard of wind erosion: Severe
Flooding: Rare

Characteristics of the Trail Soil

Position on landscape: Flood plains; intermixed with areas of Riverwash
Slope range: 0 to 1 percent
Slope features: Shape—plane or convex; length—50 to 100 feet
Typical profile:
0 to 8 inches—light yellowish brown fine sandy loam
8 to 26 inches—very pale brown loamy sand
26 to 60 inches—very pale brown loamy fine sand
Mottles: 26 to 40 inches
Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid
Available water capacity: Moderately low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe
Flooding: Rare

Contrasting Inclusions

• About 10 percent Riverwash
• About 10 percent saline-sodic soils that are on alluvial fans and that support black greasewood

Major Current Uses

Irrigated cropland, rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The hazard of wind erosion, the available water capacity, and the hazard of flooding

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 54 to 56 degrees F
Frost-free period: 160 to 180 days

Rangeland

Range site:
Gilco—Loamy Bottom (Basin Big Sagebrush)
Trail—Semiwet Saline Streambank (Fremont Cottonwood)
Composition of the potential plant community:
Gilco—55 percent grasses, 5 percent forbs, and 40 percent shrubs
Trail—60 percent grasses, 5 percent forbs, and 35 percent shrubs
Important plants:
Gilco—basin big sagebrush, blue grama, western wheatgrass, and fourwing saltbush
Trail—inland saltgrass, alkali sacaton, coyote willow, saltcedar, and Fremont cottonwood
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation.

Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Cropland

General management considerations:
• The principal irrigated crops are alfalfa, small grain, and pasture.
• Average annual yields per acre under a high level of management are 8 tons of alfalfa, 100 bushels of oats or barley, and 8 animal unit months of pasture.
Suitable management practices:
• A suitable crop rotation is one that includes 5 or 6 years of alfalfa and 2 or 3 years of small grain.
• Level border, corrugation, and sprinkler irrigation systems are suitable. The method used generally depends on the crop that is grown.
• If a level border irrigation system is used, land leveling may be needed in the steeper areas.
• To prevent overirrigation and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the needs of the crop.
• Leaving crop residue on or near the surface conserves moisture and helps to maintain tilth and control erosion.

Urban Development

General management considerations:
• The main limitations are rapid permeability and the hazard of wind erosion.
• In places excavating for houses and access roads exposes material that is highly susceptible to wind erosion.
• Cutbanks are not stable and are subject to slumping.
Suitable management practices:
• In disturbed areas on construction sites, revegetating as soon as possible helps to control wind erosion.
• If the density of housing is moderate or high, community sewage systems are needed to prevent the contamination of water supplies caused by seepage from onsite sewage disposal systems.

Land Capability Classification

Capability subclass: IIs, irrigated; VIIc, nonirrigated

15—Green River-Bankard families-Riverwash association, 0 to 4 percent slopes

Setting

Position on landscape: Flood plains
Native plants: Shrubs and grasses
Elevation: 4,200 to 5,000 feet

Composition

Green River family soils: 35 percent
Bankard family soils: 35 percent
Riverwash: 20 percent
Contrasting inclusions: 10 percent

Characteristics of the Green River Family Soils

Position on landscape: Flood plains; intermixed with areas of Riverwash
Slope range: 0 to 3 percent
Slope features: Shape—plane; length—50 to 100 feet
Typical profile:
0 to 13 inches—yellowish red coarse sandy loam
13 to 21 inches—light brown loam
21 to 60 inches—light brown fine sandy loam and loam
Special profile features: Low-chroma mottles and gleyed colors at a depth of 6 to 30 inches
Depth class: Very deep
Drainage class: Somewhat poorly drained or moderately well drained
Permeability: Moderately rapid
Available water capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Slight
Flooding: Occasional, brief, during the period February through October

Characteristics of the Bankard Family Soils

Position on landscape: Along minor stream channels
Slope range: 0 to 4 percent
Slope features: Shape—plane; length—20 to 40 feet
Typical profile:
0 to 12 inches—strong brown fine sandy loam
12 to 60 inches—stratified strong brown and brown loamy fine sand and loamy sand that has thin lenses of sandy clay loam
Content of rock fragments: 0 to 25 percent, chiefly pebbles and cobbles
Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid
Available water capacity: Low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Very slow
Hazard of water erosion: Slight, except in areas directly adjacent to stream channels, which are subject to severe gully erosion
Hazard of wind erosion: Severe

Flooding: Occasional, very brief, during prolonged high-intensity storms in the period March through September

Characteristics of Riverwash

• Riverwash consists of sandy and loamy material that has varying amounts of gravel and cobbles. It has been reworked by streams so frequently that it supports little or no vegetation. It is in stream channels and is frequently flooded for brief periods during prolonged high-intensity storms at any time of the year.

Contrasting Inclusions

• About 10 percent very deep, sodium-affected soils that support black greasewood

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The hazard of flooding

Climate-related factors

Average annual precipitation: 6 to 9 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 150 to 180 days

Rangeland

Range site:
Green River family—Semiwet Saline Streambank (Fremont Cottonwood)
Bankard family—Alkali Bottom (Black Greasewood)
Composition of the potential plant community:
Green River family—60 percent grasses, 5 percent forbs, and 35 percent shrubs
Bankard family—30 percent grasses, 10 percent forbs, and 60 percent shrubs
Important plants:
Green River family—inland saltgrass, alkali sacaton, coyote willow, saltcedar, and Fremont cottonwood
Bankard family—alkali sacaton, seepweed, and black greasewood
General management considerations:
• The suitability for range seeding is poor because of the low annual precipitation and the sodicity of the soils.
• Trafficability over unsurfaced roads is only fair because of the frequency of flooding and the deep gullies and stream channels.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Land Capability Classification

Capability subclass: Green River and Bankard families—VIIw, nonirrigated

16—Kiln loam, 2 to 15 percent slopes

Setting

Position on landscape: Mountainsides and structural benches
Slope features: Shape—plane or convex; length—10 to 20 feet
Native plants: Shrubs and grasses
Elevation: 8,000 to 8,400 feet

Characteristics of the Kiln Soil

Typical profile:
0 to 2 inches—brown loam
2 to 9 inches—brown loam
9 to 18 inches—reddish brown gravelly clay loam
18 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low
Water-supplying capacity: Moderately low or moderate
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Moderate
Runoff: Medium
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate

Contrasting Inclusions

• About 10 percent shallow, loamy soils that are on structural benches and that support pinyon and Utah juniper
• About 5 percent shallow, dark, loamy soils that are on ledges and that support ponderosa pine
• About 5 percent deep, dark, loamy soils that are in drainageways and that support big sagebrush and shrubs
• About 5 percent Rock outcrop

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A limited depth to bedrock

Climate-related factors

Average annual precipitation: 16 to 19 inches
Mean annual air temperature: 42 to 45 degrees F
Frost-free period: 80 to 100 days

Rangeland

Range site: Mountain Shallow Loam (Mountain Big Sagebrush)
Composition of the potential plant community: 55 percent grasses, 10 percent forbs, and 35 percent shrubs
Important plants: Needleandthread, elk sedge, muttongrass, Gambel oak, and mountain big sagebrush
General management considerations:
• The suitability for range seeding is poor because of the limited depth to bedrock and the low available water capacity.
• Trafficability over unsurfaced roads is good.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, Russian wildrye, small burnet, ladak alfalfa, Lewis flax, yellow sweetclover, and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

17—Limeridge gravelly very fine sandy loam, 4 to 12 percent slopes

Setting

Position on landscape: Hillsides of structural benches and cuestas
Slope features: Shape—plane and convex; length—5 to 10 feet; aspect—south-facing
Native plants: Shrubs and grasses
Elevation: 4,400 to 5,300 feet

Characteristics of the Limeridge Soil

Typical profile:
0 to 1 inch—light reddish brown gravelly very fine sandy loam
1 to 8 inches—reddish yellow fine sandy loam and gravelly fine sandy loam
8 to 16 inches—pink gravelly sandy clay loam and gravelly fine sandy loam
16 inches—cemented hardpan
Depth class: Shallow to hardpan
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low or low
Water-supplying capacity: Very low or low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 15 percent shallow, loamy soils that are on ridgetops and slope breaks and that support blackbrush
• About 10 percent very deep, loamy soils that are in basins and on canyon floors and that support fourwing saltbush, Indian ricegrass, and galleta

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The limited depth to a hardpan

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 160 to 180 days

Rangeland

Range site: Desert Shallow Sandy Loam (Shadscale)
Composition of the potential plant community: 45 percent grasses, 10 percent forbs, and 45 percent shrubs
Important plants: Galleta, shadscale, Mormon tea, and Indian ricegrass
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation and the low available water capacity.
• Trafficability over unsurfaced roads is good.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, prostrate kochia and other adapted native plants can be seeded.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

18—Littlenan-Moenkopie-Recapture complex

Setting

Position on landscape: Structural benches and alluvial terraces
Slope range: 2 to 20 percent
Native plants: Shrubs and grasses
Elevation: 4,600 to 4,900 feet

Composition

Littlenan soil and similar inclusions: 30 percent
Moenkopie soil and similar inclusions: 20 percent
Recapture soil and similar inclusions: 20 percent

Contrasting inclusions: 30 percent

Characteristics of the Littlenan Soil

Position on landscape: Hillsides of structural benches above the Moenkopie and Recapture soils
Slope range: 3 to 20 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 3 inches—light brown gravelly loam
3 to 14 inches—light brown silty clay loam
14 to 29 inches—light brown silty clay
29 inches—weathered shale bedrock
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderately low or moderate
Water-supplying capacity: Low or moderately low
Potential rooting depth: 20 to 40 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate

Characteristics of the Moenkopie Soil

Position on landscape: Structural benches; underlain by sandstone bedrock
Slope range: 2 to 20 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 2 inches—red very gravelly fine sandy loam
2 to 6 inches—red sandy loam
6 inches—sandstone bedrock
Depth class: Very shallow or shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 5 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Recapture Soil

Position on landscape: Alluvial fans adjacent to drainageways
Associated areas: Slick spots and gullies
Slope range: 2 to 8 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 16 inches—light brown fine sandy loam
16 to 42 inches—light reddish brown and reddish brown loam
42 to 60 inches—light reddish brown silt loam
Sodicity: Strongly sodic in the underlying material
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Contrasting Inclusions

- About 15 percent Rock outcrop occurring as cliffs and ledges
- About 5 percent Badland
- About 5 percent very deep, loamy soils that are along drainageways and that support black greasewood
- About 5 percent shallow, loamy soils that are on ledges and that support Utah juniper, galleta, and black sagebrush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A high content of clay, a high shrink-swell potential, a limited depth to bedrock, and the sodicity of the Recapture soil

Climate-related factors

Average annual precipitation: 6 to 10 inches
Mean annual air temperature: 52 to 55 degrees F
Frost-free period: 150 to 180 days

Rangeland

Range site:
Littlenan—Alkali Fan (Castle Valley Saltbush)
Moenkopie—Desert Shallow Sandy Loam (Shadscale)
Recapture—Alkali Flat (Black Greasewood)
Composition of the potential plant community:
Littlenan—55 percent grasses, 10 percent forbs, and 35 percent shrubs
Moenkopie—45 percent grasses, 10 percent forbs, and 45 percent shrubs
Recapture—40 percent grasses, 10 percent forbs, and 50 percent shrubs
Important plants:
Littlenan—galleta, Indian ricegrass, shadscale, and Castle Valley saltbush
Moenkopie—galleta, shadscale, Mormon tea, and Indian ricegrass

Recapture—alkali sacaton, galleta, seepweed, bottlebrush squirreltail, and black greasewood

General management considerations:

• The suitability for range seeding is very poor because of the low annual precipitation, the limited depth to bedrock or clay layers in the Moenkopie and Littlenan soils, and the sodicity of the Recapture soil.

• Trafficability over unsurfaced roads is poor because of the high content of clay in the subsoil of the Littlenan soil.

• The Littlenan soil is a possible source of clay material for sealing ponds and embankments. Disturbed areas are difficult to reclaim.

Suitable management practices:

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

• During periods of severe drought, partial or total removal of livestock may be necessary to protect the perennial vegetation.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

19—Littlenan-Ruinpoint-Rizno association, 1 to 20 percent slopes

Setting

Position on landscape: Structural benches and fan terraces

Native plants: Trees, shrubs, and grasses

Elevation: 4,800 to 5,600 feet

Composition

Littlenan soil and similar inclusions: 35 percent

Ruinpoint soil and similar inclusions: 20 percent

Rizno soil and similar inclusions: 20 percent

Contrasting inclusions: 25 percent

Characteristics of the Littlenan Soil

Position on landscape: Structural benches below the Rizno soil; underlain by shale bedrock

Slope range: 3 to 20 percent

Slope features: Shape—convex; length—10 to 20 feet

Typical profile:

0 to 3 inches—light brown gravelly loam

3 to 14 inches—light brown silty clay loam

14 to 29 inches—light brown silty clay

29 inches—weathered shale bedrock

Depth class: Moderately deep

Drainage class: Well drained

Permeability: Slow

Available water capacity: Moderately low or moderate

Water-supplying capacity: Low or moderate

Potential rooting depth: 20 to 40 inches

Organic matter content in the surface layer: Very low

Runoff: Rapid

Hazard of water erosion: Moderate

Hazard of wind erosion: Moderate

Characteristics of the Ruinpoint Soil

Position on landscape: Concave slopes on structural benches; intermixed with areas of the Littlenan soil

Slope range: 1 to 8 percent

Slope features: Shape—concave; length—40 to 80 feet

Typical profile:

0 to 2 inches—yellowish red very fine sandy loam

2 to 13 inches—yellowish red silt loam

13 to 60 inches—reddish yellow silt loam

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderately high or high

Water-supplying capacity: Moderate

Potential rooting depth: More than 60 inches

Organic matter content in the surface layer: Low

Runoff: Slow

Hazard of water erosion: Moderate

Hazard of wind erosion: Severe

Characteristics of the Rizno Soil

Position on landscape: Structural benches above the Littlenan and Ruinpoint soils; underlain by sandstone bedrock

Slope range: 3 to 15 percent

Slope features: Shape—convex; length—less than 10 feet

Typical profile:

0 to 3 inches—reddish brown fine sandy loam

3 to 13 inches—reddish brown fine sandy loam

13 inches—sandstone bedrock

Depth class: Shallow

Drainage class: Well drained

Permeability: Moderately rapid

Available water capacity: Very low

Water-supplying capacity: Very low or low

Potential rooting depth: 10 to 20 inches

Organic matter content in the surface layer: Very low

Runoff: Medium

Hazard of water erosion: Moderate

Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent very deep, loamy soils that support black greasewood and alkali sacaton

• About 10 percent deep, stony soils that are on steep hillsides and that support pinyon and Utah juniper

• About 5 percent very deep, loamy soils that are on the

lower structural benches and that support fourwing saltbush, needleandthread, and Indian ricegrass

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A high content of clay, a high shrink-swell potential, and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 49 to 53 degrees F
Frost-free period: 130 to 160 days

Rangeland

Littlenan

Range site: Alkali Fan (Castle Valley Saltbush)
Composition of the potential plant community: 35 percent grasses, 10 percent forbs, and 55 percent shrubs
Important plants: Galleta, Indian ricegrass, shadscale, and Castle Valley saltbush

Ruinpoint

Range site: Semidesert Loam (Wyoming Big Sagebrush)
Composition of the potential plant community: 45 percent grasses, 10 percent forbs, and 45 percent shrubs
Important plants: Indian ricegrass, galleta, bottlebrush squirreltail, winterfat, and Wyoming big sagebrush

Woodland

Rizno

Woodland site: Semidesert Shallow Loam (Utah Juniper-Pinyon)
Overstory canopy: 30 percent, consisting of Utah juniper and pinyon
Composition of the understory vegetation: 45 percent grasses, 10 percent forbs, and 45 percent shrubs
Important plants: Indian ricegrass, Mexican cliffrose, galleta, and bottlebrush squirreltail
Site index: 20 for Utah juniper and pinyon
Average productivity: Low
Average yield per acre: 3.5 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is very poor because of the low annual precipitation, the limited depth to bedrock, and the high content of clay.
• Trafficability over unsurfaced roads is poor because of the high content of clay in the subsoil of the Littlenan soil.
• The Littlenan soil is a possible source of clay material for sealing ponds and embankments. Disturbed areas are difficult to reclaim.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• During periods of severe drought, partial or total removal of livestock may be necessary to protect the perennial vegetation.

Land Capability Classification

Capability subclass:
Littlenan soil—VIIe, nonirrigated
Ruinpoint soil—VIIe, nonirrigated
Rizno soil—VIIs, nonirrigated

20—Mido-Riverwash complex

Setting

Position on landscape: Structural benches and canyon floors
Slope range: 2 to 15 percent
Native plants: Shrubs and grasses
Elevation: 5,200 to 5,700 feet

Composition

Mido soil and similar inclusions: 70 percent
Riverwash: 20 percent
Contrasting inclusions: 10 percent

Characteristics of the Mido Soil

Position on landscape: Stabilized dunes; on structural benches in canyons intermixed with areas of Riverwash
Slope range: 2 to 15 percent
Slope features: Shape—convex; length—20 to 40 feet
Typical profile:
0 to 10 inches—red loamy fine sand
10 to 60 inches—red loamy fine sand
Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Low or moderate
Water-supplying capacity: Low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Characteristics of Riverwash

• Riverwash consists of sandy and loamy material that

has varying amounts of gravel and cobbles. It has been reworked by streams so frequently that it supports little or no vegetation. It is in stream channels and is frequently flooded for brief periods during prolonged high-intensity storms at any time of the year.

Contrasting Inclusions

• About 5 percent very deep, sandy soils that are adjacent to stream channels and that support Fremont cottonwood, saltcedar, and black greasewood
• About 5 percent shallow, very gravelly soils that are on structural benches and that support blackbrush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The severe hazard of wind erosion and a hazard of flooding along stream channels

Climate-related factors

Average annual precipitation: 8 to 10 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 170 days

Rangeland

Mido

Range site: Semidesert Sand (Fourwing Saltbush)
Composition of the potential plant community: 55 percent grasses, 15 percent forbs, and 30 percent shrubs
Important plants: Indian ricegrass, Mormon tea, needleandthread, fourwing saltbush, and sandhill muhly
General management considerations:
• The suitability for range seeding is poor because of the low annual precipitation, the restricted available water capacity, and the severe hazard of wind erosion.
• Trafficability over unsurfaced roads is poor because of the sandy texture and the hazard of flooding along stream channels.
• Disturbed areas are subject to severe wind erosion.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, fourwing saltbush, Indian ricegrass, sand dropseed, and other native plants can be drill seeded.

Land Capability Classification

Capability subclass: Mido soil—VIIe, nonirrigated

21—Mido-Rizno complex

Setting

Position on landscape: Structural benches
Slope range: 2 to 15 percent
Native plants: Shrubs and grasses
Elevation: 5,000 to 6,500 feet

Composition

Mido soil and similar inclusions: 65 percent
Rizno soil and similar inclusions: 30 percent
Contrasting inclusions: 5 percent

Characteristics of the Mido Soil

Position on landscape: Ridgetops and east- and northeast-facing slopes of structural benches; intermixed with areas of the Rizno soil
Slope features: Shape—convex; length—20 to 40 feet
Typical profile:
0 to 10 inches—red loamy fine sand
10 to 60 inches—red loamy fine sand
Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Low or moderate
Water-supplying capacity: Low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Characteristics of the Rizno Soil

Position on landscape: Structural benches; intermixed with areas of the Mido soil
Slope features: Shape—plane or convex; length—10 to 20 feet
Typical profile:
0 to 3 inches—light red fine sandy loam
3 to 18 inches—red fine sandy loam
18 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low or low
Water-supplying capacity: Very low or low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 5 percent Rock outcrop occurring as slickrock and ledges

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The severe hazard of wind erosion and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 170 days

Rangeland

Range site:
Mido—Semidesert Sand (Fourwing Saltbush)
Rizno—Semidesert Shallow Sandy Loam (Blackbrush)
Composition of the potential plant community:
Mido—55 percent grasses, 15 percent forbs, and 30 percent shrubs
Rizno—15 percent grasses, 5 percent forbs, and 80 percent shrubs
Important plants:
Mido—Indian ricegrass, Mormon tea, needleandthread, fourwing saltbush, and sandhill muhly
Rizno—blackbrush, galleta, and Torrey Mormon tea
General management considerations:
• The suitability for range seeding is poor because of the low annual precipitation, the limited depth to bedrock, and the severe hazard of wind erosion.
• Trafficability over unsurfaced roads is poor because of the sandy textures.
• Disturbed areas are subject to severe wind erosion.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, fourwing saltbush, Indian ricegrass, sand dropseed, and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIe, nonirrigated

22—Mido-Rock outcrop-Arches complex

Setting

Position on landscape: Structural benches
Slope range: 2 to 15 percent
Native plants: Shrubs and grasses
Elevation: 5,000 to 6,000 feet

Composition

Mido soil and similar inclusions: 35 percent
Rock outcrop: 35 percent
Arches soil and similar inclusions: 20 percent
Contrasting inclusions: 10 percent

Characteristics of the Mido Soil

Position on landscape: East- and northeast-facing slopes of structural benches; intermixed with areas of the Arches soil and on hummocks that are 4 to 6 feet high and 5 to 25 feet across
Slope range: 2 to 15 percent
Slope features: Shape—convex; length—20 to 40 feet
Typical profile:
0 to 10 inches—red loamy fine sand
10 to 60 inches—red loamy fine sand
Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Low or moderate
Water-supplying capacity: Low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Characteristics of Rock Outcrop

• Rock outcrop consists of exposed bedrock. It occurs as exposed slickrock, ledges, cliffs, and rounded domes. It is intermixed with areas of the Arches soil.

Characteristics of the Arches Soil

Position on landscape: Edges of structural benches; intermixed with areas of Rock outcrop
Slope range: 2 to 15 percent
Slope features: Shape—plane or convex; length—5 to 15 feet
Typical profile:
0 to 18 inches—reddish yellow fine sand
18 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent very shallow, sandy soils that are near areas of Rock outcrop and that support blackbrush and galleta

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A severe hazard of wind erosion in disturbed areas, a limited depth to bedrock, and the Rock outcrop

Climate-related factors:

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 170 days

Rangeland

Range site:
Mido—Semidesert Sand (Fourwing Saltbush)
Arches—Semidesert Shallow Sand (Blackbrush)
Composition of the potential plant community:
Mido—55 percent grasses, 15 percent forbs, and 30 percent shrubs
Arches—25 percent grasses, 10 percent forbs, and 65 percent shrubs
Important plants:
Mido—Indian ricegrass, Mormon tea, needleandthread, fourwing saltbush, and sandhill muhly
Arches—Blackbrush, Indian ricegrass, and Mormon tea
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation, the limited depth to bedrock, the Rock outcrop, and the severe hazard of wind erosion.
• Trafficability over unsurfaced roads is poor because of the sandy textures and the cliffs and ledges in areas of Rock outcrop.
• Disturbed areas are subject to severe wind erosion.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, fourwing saltbush, Indian ricegrass, sand dropseed, and other native plants can be seeded.

Land Capability Classification

Capability subclass: Mido and Arches soils—VIIe

23—Milok fine sandy loam, 1 to 6 percent slopes

Setting

Position on landscape: Structural benches, mesas, and fan terraces
Slope features: Shape—plane or concave; length—40 to 80 feet
Native plants: Shrubs and grasses
Elevation: 4,400 to 6,600 feet

Characteristics of the Milok Soil

Typical profile:
0 to 2 inches—reddish brown fine sandy loam
2 to 8 inches—yellowish red fine sandy loam
8 to 60 inches—pink fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderately high
Water-supplying capacity: Moderately low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent shallow, loamy soils that are on ledges and structural benches and that support blackbrush
• About 10 percent very deep, loamy soils that are in concave slope positions on fan terraces and that support needleandthread, Indian ricegrass, and fourwing saltbush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A severe hazard of wind erosion in disturbed areas

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free period: 130 to 160 days

Rangeland

Range site: Semidesert Sandy Loam (Blackbrush)
Composition of the potential plant community: 50 percent grasses, 5 percent forbs, and 45 percent shrubs
Important plants: Blackbrush, galleta, Indian ricegrass, and Mormon tea
General management considerations:
• The suitability for range seeding is poor because of the low annual precipitation and the severe hazard of wind erosion in disturbed areas.
• Trafficability over unsurfaced roads is good.
• Brush management can improve deteriorated areas of range that are producing more woody shrubs than would be present in the potential plant community.

Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• Brush can be controlled by prescribed burning, chemical treatment, and mechanical treatment.
• To control erosion in disturbed areas, crested wheatgrass, ladak alfalfa, and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIe, nonirrigated

24—Milok-Mivida complex

Setting

Position on landscape: Structural benches and fan terraces
Slope range: 1 to 6 percent
Native plants: Shrubs and grasses
Elevation: 4,400 to 6,000 feet

Composition

Milok soil and similar inclusions: 45 percent
Mivida soil and similar inclusions: 30 percent
Contrasting inclusions: 25 percent

Characteristics of the Milok Soil

Position on landscape: Structural benches; the upper part of fan terraces intermixed with areas of the Mivida soil
Slope features: Shape—convex; length—20 to 40 feet
Typical profile:
0 to 2 inches—reddish brown fine sandy loam
2 to 8 inches—yellowish red fine sandy loam
8 to 60 inches—pink fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderately high
Water-supplying capacity: Moderately low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Characteristics of the Mivida Soil

Position on landscape: Lower part of fan terraces and structural benches
Slope features: Shape—concave; length—20 to 40 feet
Typical profile:
0 to 7 inches—reddish brown fine sandy loam
7 to 22 inches—reddish yellow fine sandy loam
22 to 60 inches—pink fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or moderately high
Water-supplying capacity: Moderately low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent shallow, loamy soils that are underlain by a cemented hardpan and that support blackbrush and galleta
• About 10 percent shallow, loamy soils that are at the edges of structural benches and that support Utah juniper and pinyon
• About 5 percent moderately deep, loamy soils that support blackbrush, galleta, and Indian ricegrass

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A severe hazard of wind erosion in disturbed areas

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 120 to 160 days

Rangeland

Range site:
Milok—Semidesert Sandy Loam (Blackbrush)
Mivida—Semidesert Sandy Loam (Fourwing Saltbush)
Composition of the potential plant community:
Milok—50 percent grasses, 5 percent forbs, and 45 percent shrubs
Mivida—65 percent grasses, 5 percent forbs, and 30 percent shrubs
Important plants:
Milok—Blackbrush, galleta, Indian ricegrass, and Mormon tea
Mivida—Indian ricegrass, needleandthread, and fourwing saltbush
General management considerations:
• The suitability for range seeding is poor because of the low annual precipitation and the hazard of wind erosion in treated areas.
• Trafficability over unsurfaced roads is good.
• Brush management can improve deteriorated areas of range that are producing more woody shrubs than

would be present in the potential plant community.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• Brush can be controlled by prescribed burning, chemical treatment, and mechanical treatment.
• To control erosion in disturbed areas, crested wheatgrass, ladak alfalfa, and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIe, nonirrigated

25—Milok-Skos-Strych complex

Setting

Position on landscape: Fan terraces and hillsides of structural benches
Slope range: 1 to 50 percent
Native plants: Shrubs and grasses
Elevation: 5,200 to 5,600 feet

Composition

Milok soil and similar inclusions: 30 percent
Skos soil and similar inclusions: 25 percent
Strych soil and similar inclusions: 25 percent
Contrasting inclusions: 20 percent

Characteristics of the Milok Soil

Position on landscape: Fan terraces below areas of the Strych soil
Slope range: 1 to 6 percent
Slope features: Shape—plane or convex; length—20 to 40 feet
Typical profile:
0 to 2 inches—reddish brown fine sandy loam
2 to 8 inches—yellowish red fine sandy loam
8 to 60 inches—pink fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderately high
Water-supplying capacity: Moderately low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Characteristics of the Skos Soil

Position on landscape: Narrow ledges of structural benches; below and intermixed with areas of the Strych soil
Slope range: 4 to 30 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 1 inch—reddish brown channery loam
1 to 6 inches—reddish brown very channery sandy clay loam
6 inches—sandstone bedrock
Depth class: Very shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 4 to 10 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Strych Soil

Position on landscape: Upper part of fan terraces and steep hillsides of structural benches
Slope range: 30 to 50 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 2 inches—light reddish brown extremely bouldery sandy loam
2 to 60 inches—yellowish red very cobbly fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderately high
Water-supplying capacity: Low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Contrasting Inclusions

• About 10 percent shallow, loamy soils that are on ledges and that support Utah juniper and pinyon
• About 5 percent deep, very stony soils that are on very steep hillsides and that support shadscale, bud sagebrush, and Mormon tea
• About 5 percent Rock outcrop occurring as cliffs and ledges

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope, a limited depth to bedrock, and a high content of rock fragments

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free period: 130 to 160 days

Rangeland

Range site:
Milok—Semidesert Sandy Loam (Blackbrush)
Skos—Semidesert Shallow Sandy Loam (Blackbrush)
Strych—Semidesert Bouldery Fan (Blackbrush)
Composition of the potential plant community:
Milok—50 percent grasses, 5 percent forbs, and 45 percent shrubs
Skos—15 percent grasses, 5 percent forbs, and 80 percent shrubs
Strych—50 percent grasses, 5 percent forbs, and 45 percent shrubs
Important plants:
Milok—Blackbrush, galleta, Indian ricegrass, and Mormon tea
Skos—Blackbrush, galleta, and Torrey Mormon tea
Strych—Blackbrush, fourwing saltbush, galleta, black grama, and bush muhly
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation, a limited depth to bedrock, and the slope.
• Trafficability over unsurfaced roads is only fair because of numerous drainage channels and areas with large stones and boulders.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, crested wheatgrass, ladak alfalfa, and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

26—Mivida fine sandy loam, 1 to 6 percent slopes

Setting

Position on landscape: Structural benches and fan terraces
Slope features: Shape—plane or convex; length—20 to 40 feet
Native plants: Shrubs and grasses
Elevation: 4,800 to 5,500 feet

Characteristics of the Mivida Soil

Typical profile:
0 to 7 inches—reddish brown fine sandy loam
7 to 22 inches—reddish yellow fine sandy loam
22 to 60 inches—pink fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or moderately high
Water-supplying capacity: Moderately low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent very deep, loamy soils that are along stream channels and that support basin big sagebrush
• About 10 percent very deep, sandy soils that are along stream channels and that support saltcedar and black greasewood

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A severe hazard of wind erosion in disturbed areas

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 120 to 150 days

Rangeland

Range site: Semidesert Sandy Loam (Fourwing Saltbush)
Composition of the potential plant community: 65 percent grasses, 5 percent forbs, and 30 percent shrubs
Important plants: Indian ricegrass, galleta, needleandthread, and fourwing saltbush
General management considerations:
• The suitability for range seeding is poor because of the low annual precipitation and the hazard of wind erosion in treated areas.
• Trafficability over unsurfaced roads is good.
• Brush management can improve deteriorated areas of range that are producing more woody shrubs than would be present in the potential plant community.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

• To control erosion in disturbed areas, crested wheatgrass, ladak alfalfa, and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIe, nonirrigated

27—Mivida-Pastern-Rock outcrop complex, 1 to 8 percent slopes

Setting

Position on landscape: Structural benches
Native plants: Shrubs and grasses
Elevation: 4,500 to 5,600 feet

Composition

Mivida soil and similar inclusions: 40 percent
Pastern soil and similar inclusions: 20 percent
Rock outcrop: 20 percent
Contrasting inclusions: 20 percent

Characteristics of the Mivida Soil

Position on landscape: Structural benches
Slope range: 1 to 6 percent
Slope features: Shape—concave; length—80 to 100 feet
Typical profile:
0 to 7 inches—reddish brown fine sandy loam
7 to 22 inches—reddish yellow fine sandy loam
22 to 60 inches—pink fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or moderately high
Water-supplying capacity: Moderately low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Characteristics of the Pastern Soil

Position on landscape: Ridgetops and edges of structural benches; intermixed with areas of Rock outcrop
Slope range: 3 to 8 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 2 inches—reddish brown fine sandy loam
2 to 7 inches—yellowish red fine sandy loam
7 to 13 inches—pink gravelly fine sandy loam
13 inches—cemented hardpan
Depth class: Very shallow or shallow to hardpan
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Water-supplying capacity: Very low or low
Potential rooting depth: 7 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of Rock Outcrop

• Rock outcrop consists of exposed sandstone bedrock. It occurs as exposed slickrock and ledges. It is intermixed with areas of the Pastern soil.

Contrasting Inclusions

• About 15 percent shallow, loamy soils that are on ledges and that support Utah juniper and pinyon
• About 5 percent very deep, sandy soils that are in concave slope positions and that support Indian ricegrass and fourwing saltbush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Rock outcrop and the limited depth to a hardpan

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 120 to 160 days

Rangeland

Range site:
Mivida—Semidesert Sandy Loam (Fourwing Saltbush)
Pastern—Semidesert Shallow Sandy Loam (Blackbrush)
Composition of the potential plant community:
Mivida—65 percent grasses, 5 percent forbs, and 30 percent shrubs
Pastern—15 percent grasses, 5 percent forbs, and 80 percent shrubs
Important plants:
Mivida—Indian ricegrass, needleandthread, galleta, and fourwing saltbush
Pastern—blackbrush, galleta, and Torrey Mormon tea
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation, the limited depth to a hardpan, and the Rock outcrop.
• Trafficability over unsurfaced roads is only fair because of the Rock outcrop.
Suitable management practices:
• Proper grazing use, a planned grazing system, and

properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, crested wheatgrass, ladak alfalfa, and other native plants can be seeded.

Land Capability Classification

Capability subclass: Mivida and Pastern soils—VIIe, nonirrigated

28—Moenkopie-Moenkopie, warm, complex

Setting

Position on landscape: Structural benches
Slope range: 2 to 20 percent
Native plants: Shrubs and grasses
Elevation: 3,700 to 5,600 feet

Composition

Moenkopie soil and similar inclusions: 45 percent
Moenkopie, warm, soil and similar inclusions: 35 percent
Contrasting inclusions: 20 percent

Characteristics of the Moenkopie Soil

Position on landscape: Lower part of structural benches
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 2 inches—red very gravelly fine sandy loam
2 to 6 inches—red sandy loam
6 inches—sandstone bedrock
Depth class: Very shallow or shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 5 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Moenkopie, Warm, Soil

Position on landscape: Upper part of structural benches
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 1 inch—red very gravelly fine sandy loam
1 to 9 inches—red fine sandy loam
9 inches—sandstone bedrock
Depth class: Very shallow or shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 5 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Contrasting Inclusions

• About 10 percent very deep, sandy soils that are on east- and northeast-facing ridgetops and that support sand sagebrush, sand dropseed, and Indian ricegrass
• About 5 percent very deep, sandy soils that are along stream channels and that support black greasewood
• About 3 percent Rock outcrop occurring as ledges
• About 2 percent Badland

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A limited depth to bedrock

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 160 to 200 days

Rangeland

Range site:
Moenkopie—Desert Shallow Sandy Loam (Shadscale)
Moenkopie, warm—Desert Shallow Sandy Loam (Blackbrush)
Composition of the potential plant community:
Moenkopie—45 percent grasses, 10 percent forbs, and 45 percent shrubs
Moenkopie, warm—20 percent grasses, 5 percent forbs, and 75 percent shrubs
Important plants:
Moenkopie—galleta, shadscale, Mormon tea, and Indian ricegrass
Moenkopie, warm—blackbrush, galleta, Indian ricegrass, and Mormon tea
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation and the very low available water capacity.
• Trafficability over unsurfaced roads is only fair because of numerous drainage channels dissecting this unit.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

29—Moenkopie-Rock outcrop complex

Setting

Position on landscape: Structural benches and canyons
Slope range: 2 to 20 percent
Native plants: Shrubs and grasses
Elevation: 3,700 to 4,500 feet

Composition

Moenkopie soil and similar inclusions: 40 percent
Rock outcrop: 35 percent
Contrasting inclusions: 25 percent

Characteristics of the Moenkopie Soil

Position on landscape: Hillsides of structural benches and canyons
Slope range: 2 to 20 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 1 inch—red very gravelly fine sandy loam
1 to 9 inches—red fine sandy loam
9 inches—sandstone bedrock
Depth class: Very shallow or shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 5 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of Rock Outcrop

• Rock outcrop consists of exposed sandstone bedrock occurring as cliffs and ledges. It is intermixed with areas of the Moenkopie soil.

Contrasting Inclusions

• About 15 percent shallow, loamy soils that are on ledges at the lower elevations and that support shadscale, galleta, and Indian ricegrass
• About 10 percent Badland

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Rock outcrop and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 160 to 200 days

Rangeland

Moenkopie

Range site: Desert Shallow Sandy Loam (Blackbrush)
Composition of the potential plant community: 20 percent grasses, 5 percent forbs, and 75 percent shrubs
Important plants: Blackbrush, galleta, Indian ricegrass, and Mormon tea
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation, the very low available water capacity, and the Rock outcrop.
• Trafficability over unsurfaced roads is poor because of the Rock outcrop.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Land Capability Classification

Capability subclass: Moenkopie soil—VIIs

30—Moffat fine sandy loam, 0 to 2 percent slopes

Setting

Position on landscape: Structural benches
Slope features: Shape—plane; length—100 to 300 feet
Native plants: Shrubs and grasses
Elevation: 4,400 to 4,500 feet

Characteristics of the Moffat Soil

Typical profile:
0 to 10 inches—reddish yellow fine sandy loam
10 to 28 inches—pink fine sandy loam
28 to 60 inches—reddish yellow fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or moderately high
Water-supplying capacity: Moderately low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 5 percent very deep, cobbly and gravelly soils that are on the edges of structural benches

Major Current Uses

Irrigated cropland, rangeland, and wildlife habitat

Major Management Factors

Soil-related factors

A severe hazard of wind erosion in disturbed areas

Climate-related factors

Average annual precipitation: 7 to 8 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 175 to 185 days

Rangeland

Range site: Desert Sandy Loam (Blackbrush)
Composition of the potential plant community: 45 percent grasses, 10 percent forbs, and 45 percent shrubs
Important plants: Blackbrush, Mormon tea, Indian ricegrass, and galleta
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation and the severe hazard of wind erosion in disturbed areas.
• Trafficability over unsurfaced roads is good.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, prostrate kochia and other native plants can be seeded.

Cropland

General management considerations:
• The principal irrigated crops are alfalfa, small grain, melons, grapes, and pasture.
• Average annual yields per acre under a high level of management are 8 tons of alfalfa, 100 bushels of oats or barley, 14 tons of cantaloupes, 18 tons of watermelons, 5 tons of grapes, and 8 animal unit months of pasture.
• The main limitations are wind erosion, rapid water intake, and the available water capacity.
Suitable management practices:
• A suitable crop rotation is one that includes 5 or 6 years of alfalfa and 2 or 3 years of small grain.
• Sprinkler or drip irrigation systems are suitable. The method used generally depends on the crop that is grown.
• To prevent overirrigation and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the needs of the crop.
• Leaving crop residue on or near the surface conserves moisture and helps to maintain tilth and control erosion.
• Wind erosion can be controlled by returning crop residue to the soil and by using conservation tillage practices.

Land Capability Classification

Capability subclass: IIe, irrigated; VIIe, nonirrigated

31—Moffat loamy fine sand, 2 to 5 percent slopes

Setting

Position on landscape: Structural benches
Slope features: Shape—plane with hummocks; length—50 to 100 feet
Native plants: Shrubs and grasses
Elevation: 4,400 to 4,600 feet

Characteristics of the Moffat Soil

Typical profile:
0 to 19 inches—reddish yellow loamy fine sand
19 to 24 inches—reddish yellow fine sandy loam
24 to 60 inches—pink or light red fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or moderately high
Water-supplying capacity: Moderately low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent very deep, sandy soils that are on dunes and that support Indian ricegrass and sand sagebrush
• About 1 percent Rock outcrop

Major Current Uses

Irrigated cropland, rangeland, and wildlife habitat

Major Management Factors

Soil-related factors

A severe hazard of wind erosion in disturbed areas

Climate-related factors

Average annual precipitation: 7 to 8 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 175 to 185 days

Rangeland

Range site: Desert Sandy Loam (Blackbrush)
Composition of the potential plant community: 45 percent grasses, 10 percent forbs, and 45 percent shrubs

Important plants: Blackbrush, Mormon tea, Indian ricegrass, and galleta
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation and the severe hazard of wind erosion in disturbed areas.
• Trafficability over unsurfaced roads is good.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, prostrate kochia and other native plants can be seeded.

Cropland

General management considerations:
• The principal irrigated crops are alfalfa, small grain, and pasture.
• Average annual yields per acre under a high level of management are 8 tons of alfalfa, 100 bushels of oats or barley, and 8 animal unit months of pasture.
• The main limitations are wind erosion, rapid water intake, and the available water capacity.
Suitable management practices:
• A suitable crop rotation is one that includes 5 or 6 years of alfalfa and 2 or 3 years of small grain.
• Sprinkler irrigation systems are suitable.
• To prevent overirrigation and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the needs of the crop.
• Leaving crop residue on or near the surface conserves moisture and helps to maintain tilth and control erosion.
• Wind erosion can be controlled by returning crop residue to the soil and by using conservation tillage practices.

Land Capability Classification

Capability subclass: IIe, irrigated; VIIe, nonirrigated

32—Myton family-Nakai-Redhouse complex

Setting

Position on landscape: Hillsides of structural benches and fan terraces
Slope range: 1 to 50 percent
Native plants: Shrubs and grasses
Elevation: 3,700 to 6,000 feet

Composition

Myton family soils and similar inclusions: 30 percent
Nakai soil and similar inclusions: 20 percent
Redhouse soil and similar inclusions: 20 percent
Contrasting inclusions: 30 percent

Characteristics of the Myton Family Soils

Position on landscape: Steep hillsides above the Nakai and Redhouse soils
Slope range: 30 to 50 percent
Slope features: Shape—convex; length—less than 20 feet
Typical profile:
0 to 6 inches—yellowish red very gravelly sandy loam
6 to 60 inches—yellowish red very cobbly sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderately low
Water-supplying capacity: Low or moderately low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Nakai Soil

Position on landscape: Lower part of fan terraces; intermixed with areas of the Redhouse soil
Slope range: 1 to 6 percent
Slope features: Shape—plane or convex; length—20 to 40 feet
Typical profile:
0 to 2 inches—reddish brown loamy fine sand
2 to 39 inches—reddish brown fine sandy loam
39 to 60 inches—light reddish brown fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or high
Water-supplying capacity: Moderately low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Characteristics of the Redhouse Soil

Position on landscape: Fan terraces; intermixed with areas of the Nakai soil and below the Myton family soils
Slope range: 2 to 8 percent
Slope features: Shape—concave; length—20 to 40 feet
Typical profile:
0 to 5 inches—reddish brown fine sandy loam
5 to 13 inches—red sandy clay loam

13 to 60 inches—red gravelly sandy clay loam and sandy clay loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderately high
Water-supplying capacity: Moderately low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent shallow, loamy soils that are on ledges and that support blackbrush
• About 10 percent deep, very stony soils that are on very steep slopes and that support shadscale, galleta, and Indian ricegrass
• About 5 percent very deep, sodium-affected soils that are on alluvial fans and terraces and that support black greasewood, alkali sacaton, and shadscale
• About 5 percent Badland

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope and a high content of rock fragments

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 160 to 200 days

Rangeland

Range site:
Myton family—Desert Stony Loam (Shadscale-Bud Sagebrush)
Nakai—Desert Sandy Loam (Fourwing Saltbush)
Redhouse—Desert Loam (Shadscale)
Composition of the potential plant community:
Myton family—40 percent grasses, 10 percent forbs, and 50 percent shrubs
Nakai—65 percent grasses, 10 percent forbs, and 25 percent shrubs
Redhouse—35 percent grasses, 10 percent forbs, and 55 percent shrubs
Important plants:
Myton family—shadscale, galleta, bud sagebrush, and Indian ricegrass
Nakai—Indian ricegrass, galleta, dropseed, and fourwing saltbush
Redhouse—shadscale, Indian ricegrass, bud sagebrush, winterfat, and galleta
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation and the slope.
• Trafficability over unsurfaced roads is good, except in areas of the Myton family soils because of the slope, large stones and boulders, and the areas of Badland.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, prostrate kochia and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIe, nonirrigated

33—Myton family-Rock outcrop complex

Setting

Position on landscape: Steep hillsides
Slope range: 30 to 50 percent
Native plants: Shrubs and grasses
Elevation: 3,800 to 5,200 feet

Composition

Myton family soils: 70 percent
Rock outcrop: 10 percent
Contrasting inclusions: 20 percent

Characteristics of the Myton Family Soils

Position on landscape: Steep hillsides broken by cliffs and ledges
Slope range: 30 to 50 percent
Slope features: Shape—convex; length—less than 20 feet
Typical profile:
0 to 6 inches—yellowish red very gravelly sandy loam
6 to 60 inches—yellowish red very cobbly sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderately low
Water-supplying capacity: Low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of Rock Outcrop

• Rock outcrop consists of exposed sandstone bedrock

occurring as cliffs and ledges. It is intermixed with areas of the Myton family soils and Badland.

Contrasting Inclusions

• About 15 percent moderately deep, very stony soils that are on very steep slopes and that support saline wildrye, galleta, shadscale, and Mormon tea
• About 5 percent shallow, very stony soils that are on steep slopes and that support blackbrush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope and a high content of rock fragments

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 160 to 200 days

Rangeland

Myton family

Range site: Desert Stony Loam (Shadscale-Bud Sagebrush)
Composition of the potential plant community: 40 percent grasses, 10 percent forbs, and 50 percent shrubs
Important plants: Shadscale, galleta, bud sagebrush, and Indian ricegrass
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation, a high content of rock fragments, and the slope.
• Trafficability over unsurfaced roads is poor because of the slope, large stones and boulders, and ledges.
• Steep slopes limit access by livestock.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Land Capability Classification

Capability subclass: Myton family soils—VIIs, nonirrigated

34—Myton family-Shalet-Badland complex

Setting

Position on landscape: Steep hillsides and structural benches
Slope range: 4 to 70 percent
Native plants: Shrubs and grasses
Elevation: 3,700 to 5,000 feet

Composition

Myton family soils and similar inclusions: 40 percent
Shalet soil and similar inclusions: 25 percent
Badland: 20 percent
Contrasting inclusions: 15 percent

Characteristics of the Myton Family Soils

Position on landscape: Steep hillsides broken by areas of Badland and on ledges intermixed with areas of the Shalet soil
Slope range: 50 to 70 percent
Slope features: Shape—convex; length—20 to 40 feet
Typical profile:
0 to 4 inches—light red extremely bouldery loam
4 to 60 inches—light red very cobbly sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderately low
Water-supplying capacity: Low or moderately low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Shalet Soil

Position on landscape: Structural benches below the Myton family soils; intermixed with areas of these soils on ledges
Slope range: 4 to 15 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 2 inches—reddish brown clay loam
2 to 12 inches—reddish brown clay loam
12 inches—unweathered shale bedrock
Depth class: Very shallow or shallow
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very low or low
Water-supplying capacity: Very low
Potential rooting depth: 5 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate

Characteristics of Badland

• Badland consists of steep and very steep, barren areas of actively eroding shale and shale interbedded with thin layers of sandstone bedrock. It is dissected by drainageways. Runoff is very rapid.

Contrasting Inclusions

• About 10 percent Rock outcrop occurring as cliffs and ledges
• About 5 percent moderately deep, sandy soils that are on steep slopes and that support Indian ricegrass, saline wildrye, and Mormon tea

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope, stoniness, and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 6 to 9 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 160 to 200 days

Rangeland

Range site:
Myton family—Talus Slope (Blackbrush-Shadscale)
Shalet—Desert Shallow Clay (Shadscale)
Composition of the potential plant community:
Myton family—35 percent grasses, 10 percent forbs, and 55 percent shrubs
Shalet—40 percent grasses, 10 percent forbs, and 50 percent shrubs
Important plants:
Myton family—blackbrush, shadscale, Indian ricegrass, saline wildrye, and galleta
Shalet—galleta, shadscale, Mormon tea, and Castle Valley saltbush
General management considerations:
• The suitability for range seeding is very poor because of the slope, stoniness, a limited depth to bedrock, and the low annual precipitation.
• Trafficability over unsurfaced roads is poor because of the slope, boulders and stones, and the areas of Badland.
• The slope limits access by livestock.
Suitable management practices:
• Installing water bars and culverts can help to control erosion and maintain trafficability.

Land Capability Classification

Capability subclass: Myton family and Shalet soils—VIIs, nonirrigated

35—Myton family-Skos-Rock outcrop association

Setting

Position on landscape: Steep hillsides of structural benches
Slope range: 30 to 70 percent
Native plants: Shrubs and grasses
Elevation: 3,700 to 6,400 feet

Composition

Myton family soils and similar inclusions: 40 percent
Skos soil and similar inclusions: 35 percent
Rock outcrop: 10 percent
Contrasting inclusions: 15 percent

Characteristics of the Myton Family Soils

Position on landscape: Steep hillsides broken by cliffs and ledges of Rock outcrop and on ledges intermixed with areas of the Skos soil
Slope range: 50 to 70 percent
Slope features: Shape—convex; length—20 to 40 feet
Typical profile:
0 to 4 inches—light red extremely bouldery loam
4 to 60 inches—light red very cobbly sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderately low
Water-supplying capacity: Low or moderately low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Skos Soil

Position on landscape: Narrow ledges on hillsides of structural benches below and intermixed with areas of the Myton family soils
Slope range: 30 to 50 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 3 inches—red channery sandy loam
3 to 19 inches—red very channery sandy clay loam
19 inches—unweathered shale bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low or low
Water-supplying capacity: Very low or low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of Rock Outcrop

• Rock outcrop consists of bare exposures of sandstone bedrock occurring as cliffs and ledges. It is above and

intermixed with areas of the Myton family and Skos soils.

Contrasting Inclusions

- About 5 percent Badland
- About 5 percent deep, very stony soils that are on steep hillsides and that support blackbrush
- About 5 percent deep, very stony soils that are on hillsides and that support Utah juniper and pinyon

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope, stoniness, and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 7 to 10 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 140 to 170 days

Rangeland

Range site:
Myton family—Talus Slope (Blackbrush-Shadscale)
Skos—Semidesert Shallow Sandy Loam (Blackbrush)
Composition of the potential plant community:
Myton family—35 percent grasses, 10 percent forbs, and 55 percent shrubs
Skos—15 percent grasses, 5 percent forbs, and 80 percent shrubs
Important plants:
Myton family—Indian ricegrass, saline wildrye, galleta, blackbrush, and shadscale
Skos—blackbrush, galleta, and Torrey Mormon tea
General management considerations:
- The suitability for range seeding is very poor because of the slope, a high content of rock fragments on the surface, and the low annual precipitation.
- Trafficability over unsurfaced roads is poor because of the slope and large boulders and stones.
- The slope limits access by livestock.

Land Capability Classification

Capability subclass: Myton family and Skos soils—VIIs, nonirrigated

36—Nakai fine sandy loam, 1 to 6 percent slopes

Setting

Position on landscape: Structural benches and fan terraces
Slope features: Shape—plane; length—20 to 40 feet
Native plants: Shrubs and grasses
Elevation: 4,400 to 5,200 feet

Characteristics of the Nakai Soil

Typical profile:
0 to 2 inches—reddish yellow fine sandy loam
2 to 28 inches—reddish yellow fine sandy loam
28 to 44 inches—reddish pink and pink fine sandy loam
44 inches—cemented hardpan
Depth class: Deep to hardpan
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderately low or moderate
Water-supplying capacity: Low or moderately low
Potential rooting depth: 40 to 60 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Contrasting Inclusions

- About 10 percent moderately deep, loamy soils that are near the edge of structural benches and that support blackbrush, Mormon tea, and Indian ricegrass
- About 5 percent shallow, loamy soils that are on slope breaks and at the edges of structural benches and that support shadscale
- About 5 percent shallow, loamy soils that are on hillsides and ledges and that support blackbrush, Mormon tea, and galleta

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The severe hazard of wind erosion

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 50 to 56 degrees F
Frost-free period: 150 to 180 days

Rangeland

Range site: Desert Sandy Loam (Fourwing Saltbush)
Composition of the potential plant community: 65 percent grasses, 10 percent forbs, and 25 percent shrubs
Important plants: Indian ricegrass, galleta, dropseed, and fourwing saltbush
General management considerations:
- The suitability for range seeding is very poor because of the low annual precipitation and the severe hazard of wind erosion.
- Trafficability over unsurfaced roads is good.

Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, prostrate kochia and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIe, nonirrigated

37—Nakai-Moffat-Sheppard association

Setting

Position on landscape: Structural benches
Slope range: 1 to 15 percent
Native plants: Shrubs and grasses
Elevation: 4,400 to 4,900 feet

Composition

Nakai soil and similar inclusions: 30 percent
Moffat soil and similar inclusions: 30 percent
Sheppard soil and similar inclusions: 20 percent
Contrasting inclusions: 20 percent

Characteristics of the Nakai Soil

Position on landscape: Structural benches below the Moffat soil
Slope range: 1 to 6 percent
Slope features: Shape—plane or concave; length—20 to 40 feet
Typical profile:
0 to 2 inches—reddish brown loamy fine sand
2 to 39 inches—reddish brown fine sandy loam
39 to 60 inches—light reddish brown fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or high
Water-supplying capacity: Moderately low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Characteristics of the Moffat Soil

Position on landscape: Along ridges of structural benches
Slope range: 3 to 12 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 3 inches—yellowish red fine sandy loam
3 to 18 inches—yellowish red fine sandy loam
18 to 60 inches—reddish yellow and yellowish red fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or moderately high
Water-supplying capacity: Moderately low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Sheppard Soil

Position on landscape: East- and northeast-facing side slopes of structural benches in draws
Slope range: 2 to 15 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 6 inches—light red loamy fine sand
6 to 60 inches—light red loamy fine sand
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Rapid
Available water capacity: Low or moderately low
Water-supplying capacity: Low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent shallow, loamy soils that are on edges of structural benches and near areas of Rock outcrop and that support blackbrush
• About 10 percent Rock outcrop occurring as ledges and slickrock

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A severe hazard of wind erosion in disturbed areas

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 51 to 54 degrees F
Frost-free period: 160 to 180 days

Rangeland

Range site:
Nakai—Desert Sandy Loam (Fourwing Saltbush)
Moffat—Desert Sandy Loam (Blackbrush)
Sheppard—Desert Sand (Sand Sagebrush)

Composition of the potential plant community:
Nakai—65 percent grasses, 10 percent forbs, and 25 percent shrubs
Moffat—45 percent grasses, 10 percent forbs, and 45 percent shrubs
Sheppard—55 percent grasses, 15 percent forbs, and 30 percent shrubs
Important plants:
Nakai—Indian ricegrass, galleta, dropseed, and fourwing saltbush
Moffat—blackbrush, Mormon tea, Indian ricegrass, and galleta
Sheppard—Indian ricegrass, sand sagebrush, sand dropseed, and sandhill muhly
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation and the severe hazard of wind erosion.
• Trafficability over unsurfaced roads is good, except in areas of the Sheppard soil.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, prostrate kochia and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIe, nonirrigated

38—Oljeto family, 10 to 40 percent slopes

Setting

Position on landscape: Stream terraces and hillsides of structural benches
Slope features: Shape—convex; length—50 to 100 feet
Native plants: Shrubs and grasses
Elevation: 4,400 to 4,500 feet

Characteristics of the Oljeto Family Soils

Typical profile:
0 to 5 inches—yellowish red very cobbly fine sandy loam
5 to 60 inches—light reddish brown and pink extremely cobbly loamy fine sand and extremely cobbly sand
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Rapid
Available water capacity: Low
Water-supplying capacity: Very low or low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Slight

Contrasting Inclusions

• About 10 percent very deep, sandy loam soils that are on concave slopes and that support Indian ricegrass, galleta, and fourwing saltbush
• About 5 percent very deep, loamy sand soils that are on concave slopes and that support Mormon tea, Indian ricegrass, and fourwing saltbush
• About 3 percent shallow soils that are on remnant structural benches and that support blackbrush, shadscale, and galleta
• About 2 percent Rock outcrop

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope, the low available water capacity, and rock fragments on the surface

Climate-related factors

Average annual precipitation: 7 to 8 inches
Mean annual air temperature: 54 to 56 degrees F
Frost-free period: 175 to 185 days

Rangeland

Range site: Desert Sandy Loam (Fourwing Saltbush)
Composition of the potential plant community: 65 percent grasses, 10 percent forbs, and 25 percent shrubs
Important plants: Indian ricegrass, galleta, dropseed, and fourwing saltbush
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation, the low available water capacity, and rock fragments on the surface.
• Trafficability over unsurfaced roads is good.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

39—Pastern-Rizno-Rock outcrop complex

Setting

Position on landscape: Structural benches
Slope range: 3 to 15 percent
Native plants: Trees, shrubs, and grasses
Elevation: 4,700 to 5,400 feet

Composition

Pastern soil and similar inclusions: 40 percent
Rizno soil and similar inclusions: 20 percent
Rock outcrop: 20 percent
Contrasting inclusions: 20 percent

Characteristics of the Pastern Soil

Position on landscape: Structural benches; intermixed with areas of the Rizno soil
Slope range: 3 to 8 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 2 inches—reddish brown fine sandy loam
2 to 7 inches—yellowish red fine sandy loam
7 to 13 inches—pink gravelly fine sandy loam
13 inches—cemented hardpan
Depth class: Very shallow or shallow to hardpan
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Water-supplying capacity: Very low or low
Potential rooting depth: 7 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Rizno Soil

Position on landscape: Structural benches adjacent to areas of Rock outcrop
Slope range: 3 to 15 percent
Slope features: Shape—concave; length—20 to 40 feet
Typical profile:
0 to 3 inches—yellowish red fine sandy loam
3 to 9 inches—yellowish red fine sandy loam
9 inches—sandstone bedrock
Depth class: Very shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 4 to 10 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of Rock Outcrop

• Rock outcrop consists of exposures of sandstone bedrock occurring as slickrock and ledges.

Contrasting Inclusions

• About 15 percent very deep, loamy soils that are on concave slopes and that support blackbrush, galleta, and Indian ricegrass
• About 5 percent very deep, loamy soils that are on concave slopes and along ridges and that support needleandthread, Indian ricegrass, and fourwing saltbush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Rock outcrop and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 120 to 160 days

Rangeland

Pastern

Range site: Semidesert Shallow Sandy Loam (Blackbrush)
Composition of the potential plant community: 15 percent grasses, 5 percent forbs, and 80 percent shrubs
Important plants: Blackbrush, galleta, and Torrey Mormon tea

Woodland

Rizno

Woodland site: Semidesert Shallow Sandy Loam (Utah Juniper-Pinyon)
Overstory canopy: 15 to 20 percent, consisting of Utah juniper and pinyon
Composition of the understory vegetation: 20 percent grasses, 10 percent forbs, and 70 percent shrubs
Important plants: Blackbrush, galleta, Indian ricegrass, and Mormon tea
Site index: 40 for Utah juniper and pinyon
Average productivity: Low
Average yield per acre: 4.5 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is very poor because of the low annual precipitation, the limited depth to bedrock, and the Rock outcrop.
• Trafficability over unsurfaced roads is only fair because of the Rock outcrop.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, prostrate kochia and other native plants can be seeded.

Land Capability Classification

Capability subclass: Pastern and Rizno soils—VIIe

40—Piute-Sheppard-Rock outcrop association

Setting

Position on landscape: Structural benches
Slope range: 2 to 15 percent
Native plants: Shrubs and grasses
Elevation: 3,700 to 5,000 feet

Composition

Piute soil and similar inclusions: 30 percent
Sheppard soil and similar inclusions: 30 percent
Rock outcrop: 20 percent
Contrasting inclusions: 20 percent

Characteristics of the Piute Soil

Position on landscape: Structural benches intermixed with areas of slickrock
Slope range: 4 to 15 percent
Slope features: Shape—plane or concave; length—20 to 40 feet
Typical profile:
0 to 9 inches—reddish yellow loamy fine sand
9 inches—sandstone bedrock
Depth class: Very shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 5 to 10 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Severe
Hazard of wind erosion: Severe

Characteristics of the Sheppard Soil

Position on landscape: Ridgetops and east-facing slopes of structural benches in an irregular pattern of hummocks, 3 to 8 feet high and 3 to 10 feet in diameter
Slope range: 2 to 15 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 6 inches—reddish yellow loamy fine sand
6 to 60 inches—reddish yellow loamy fine sand
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Rapid
Available water capacity: Low or moderately low
Water-supplying capacity: Low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Characteristics of Rock Outcrop

• Rock outcrop consists of bare exposures of sandstone bedrock. It is intermixed with areas of the Piute and Sheppard soils and occurs as bare slickrock, ledges, and cliffs.

Included Areas

Similar inclusions:
• Soils that are similar to the Piute soil but are 10 to 20 inches deep over sandstone bedrock
Contrasting inclusions:
• About 10 percent moderately deep, sandy soils that are on concave slopes and that support blackbrush
• About 10 percent very deep, loamy soils that are on concave slopes and that support blackbrush, Indian ricegrass, and galleta

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Rock outcrop, a limited depth to bedrock, and the severe hazard of wind erosion

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 160 to 200 days

Rangeland

Range site:
Piute—Desert Shallow Sandy Loam (Blackbrush)
Sheppard—Desert Sand (Sand Sagebrush)
Composition of the potential plant community:
Piute—20 percent grasses, 5 percent forbs, and 75 percent shrubs
Sheppard—55 percent grasses, 15 percent forbs, and 30 percent shrubs
Important plants:
Piute—blackbrush, galleta, Indian ricegrass, and Mormon tea
Sheppard—dominantly desert oak; also, Indian ricegrass, sand dropseed, sandhill muhly, and sand sagebrush
General management considerations:
• The suitability for range seeding is very poor because of the very low available water capacity of the Piute soil, the severe hazard of wind erosion, the low annual precipitation, and the Rock outcrop.

• Trafficability over unsurfaced roads is poor because of the sandy texture and cliffs and ledges.
• Disturbed areas are subject to severe wind erosion.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, Indian ricegrass, spike dropseed, and prostrate kochia can be drill seeded.

Land Capability Classification

Capability subclass: Piute and Sheppard soils—VIIe

41—Recapture fine sandy loam, 0 to 2 percent slopes

Setting

Position on landscape: Alluvial fans and stream terraces
Slope features: Shape—plane; length—100 to 150 feet
Native plants: Shrubs and grasses
Elevation: 4,300 to 4,400 feet

Characteristics of the Recapture Soil

Typical profile:
0 to 6 inches—light brown fine sandy loam
6 to 25 inches—light reddish brown clay loam and sandy clay loam
25 to 53 inches—light reddish brown clay loam
53 to 60 inches—light reddish brown very fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderately high
Water-supplying capacity: Moderately low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe
Flooding: Rare

Contrasting Inclusions

• About 10 percent very deep, silty clay soils that are on stream terraces and that support black greasewood
• About 5 percent very deep, fine sandy loam soils that are on alluvial fans and that support Indian ricegrass and fourwing saltbush

Major Current Uses

Rangeland, recreation, wildlife habitat, and homesite development

Major Management Factors

Soil-related factors

Sodicity and the severe hazard of wind erosion

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 54 to 56 degrees F
Frost-free period: 160 to 180 days

Rangeland

Range site: Alkali Flat (Black Greasewood)
Composition of the potential plant community: 40 percent grasses, 10 percent forbs, and 50 percent shrubs
Important plants: Alkali sacaton, galleta, seepweed, bottlebrush squirreltail, and black greasewood
General management considerations:
• The suitability for range seeding is very poor because of the sodicity and the low annual precipitation.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Urban development

General management considerations:
• The main limitations are wind erosion, the restricted permeability, and the rare flooding.
• Excavating for houses and access roads exposes material that is highly susceptible to wind erosion.
Suitable management practices:
• In disturbed areas around construction sites, revegetating as soon as possible helps to control wind erosion.
• If the density of housing is moderate or high, community sewage systems are needed to prevent the contamination of water supplies caused by seepage from onsite sewage disposal systems.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

42—Recapture-Redbank family-Bankard family association, 0 to 8 percent slopes

Setting

Position on landscape: Stream terraces and flood plains
Native plants: Shrubs and grasses
Elevation: 4,500 to 5,200 feet

Composition

Recapture soil and similar inclusions: 25 percent
Redbank family soils and similar inclusions: 25 percent
Bankard family soils and similar inclusions: 25 percent
Contrasting inclusions: 25 percent

Characteristics of the Recapture Soil

Position on landscape: Stream terraces
Slope range: 2 to 8 percent
Slope features: Shape—convex in hummocks; length—less than 10 feet
Typical profile:
0 to 16 inches—light brown fine sandy loam
16 to 42 inches—light reddish brown and reddish brown loam
42 to 60 inches—light reddish brown silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Redbank Family Soils

Position on landscape: Flood plains
Slope range: 0 to 4 percent
Slope features: Shape—plane; length—50 to 100 feet
Typical profile:
0 to 3 inches—strong brown fine sandy loam
3 to 60 inches—stratified brown and reddish yellow fine sandy loam and sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low to high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe
Flooding: Occasional, very brief, during the period March through September

Characteristics of the Bankard Family Soils

Position on landscape: Stream channels and flood plains below the Recapture soil and adjacent to deeply incised drainage channels
Slope range: 0 to 4 percent
Slope features: Shape—plane; length—20 to 40 feet
Typical profile:
0 to 12 inches—strong brown fine sandy loam
12 to 60 inches—stratified strong brown and brown loamy fine sand and loamy sand that has thin lenses of sandy clay loam
Special profile features: Highly stratified with dominantly sandy textures; common thin lenses of loamy material; 0 to 25 percent rock fragments, mainly gravel and cobbles
Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid
Available water capacity: Low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Very slow
Hazard of water erosion: Slight, except in areas directly adjacent to stream channels, which are subject to severe gully erosion
Hazard of wind erosion: Severe
Flooding: Occasional, very brief, during the period March through September

Contrasting Inclusions

• About 15 percent slickspots and gullies that are intermixed with areas of the Recapture soil
• About 5 percent somewhat poorly drained, loamy soils that are adjacent to stream channels and that support Fremont cottonwood and saltcedar
• About 5 percent very deep, loamy soils that are on alluvial fans and that support fourwing saltbush, Indian ricegrass, and galleta

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

Occasional, brief flooding in areas of the Redbank family and Bankard family soils during prolonged high-intensity storms; sodicity and dispersiveness of the Recapture soil

Climate-related factors

Average annual precipitation: 6 to 9 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 150 to 180 days

Rangeland

Range site:
Recapture—Alkali Flat (Black Greasewood)
Redbank family—Loamy Bottom (Basin Big Sagebrush)
Bankard family—Alkali Bottom (Black Greasewood)
Composition of the potential plant community:
Recapture—40 percent grasses, 10 percent forbs, and 50 percent shrubs
Redbank family—55 percent grasses, 5 percent forbs, and 40 percent shrubs
Bankard family—30 percent grasses, 10 percent forbs, and 60 percent shrubs

Important plants:
Recapture—alkali sacaton, galleta, seepweed, black greasewood, and bottlebrush squirreltail
Redbank family—western wheatgrass, blue grama, basin big sagebrush, and fourwing saltbush
Bankard family—alkali sacaton, seepweed, and black greasewood
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation, the sodicity of the Recapture soil, and the hazard of erosion on the Recapture soil.
• Trafficability over unsurfaced roads is only fair because of the numerous gullies, the occasional flooding, and the sandy texture.
• Disturbed areas of the Recapture and Bankard family soils are difficult to reclaim because of the sodicity.
• If plant cover is disturbed, protection from flooding is needed to control gullying, streambank cutting, and sheet erosion.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• Deep ripping and contour furrowing and seeding Indian ricegrass, prostrate kochia, and other native plants help to control erosion in disturbed areas of the Recapture soil.

Land Capability Classification

Capability subclass:
Recapture soil—VIIs, nonirrigated
Redbank family soils—VIIe, nonirrigated
Bankard family soils—VIIe, nonirrigated

43—Redbank family-Riverwash-Green River family association, 0 to 4 percent slopes

Setting

Position on landscape: Stream terraces and flood plains
Native plants: Shrubs and grasses
Elevation: 4,800 to 5,500 feet

Composition

Redbank family soils and similar inclusions: 35 percent
Riverwash: 20 percent
Green River family soils and similar inclusions: 20 percent
Contrasting inclusions: 25 percent

Characteristics of the Redbank Family Soils

Position on landscape: Stream terraces above the Green River family soils
Slope range: 0 to 4 percent
Slope features: Shape—plane; length—50 to 100 feet
Typical profile:
0 to 3 inches—strong brown fine sandy loam
3 to 60 inches—stratified brown and reddish yellow fine sandy loam and sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low to high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe
Flooding: Occasional, very brief, during prolonged high-intensity storms in the period March through September

Characteristics of Riverwash

• Riverwash consists of sandy and loamy material that has varying amounts of gravel and cobbles. It has been reworked by streams so frequently that it supports little or no vegetation. It is in stream channels and is frequently flooded for brief periods during prolonged high-intensity storms at any time of the year.

Characteristics of the Green River Family Soils

Position on landscape: Flood plains; intermixed with areas of Riverwash
Slope range: 0 to 3 percent
Slope features: Shape—plane; length—50 to 100 feet
Typical profile:
0 to 13 inches—yellowish red coarse sandy loam
13 to 21 inches—light brown loam
21 to 60 inches—light brown fine sandy loam and loam
Special features: Low-chroma mottles and gleyed colors at a depth of 6 to 30 inches
Depth class: Very deep
Drainage class: Somewhat poorly drained or moderately well drained
Permeability: Moderately rapid
Available water capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Slight
Flooding: Occasional, brief, during the period February through October

Contrasting Inclusions

• About 15 percent very deep, loamy soils that are on

alluvial fans and that support Wyoming big sagebrush and galleta
• About 5 percent very deep, sandy soils that are along stream channels and that support black greasewood and seepweed
• About 5 percent shallow, loamy soils that are on ledges and that support Utah juniper and pinyon

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

Occasional, brief flooding during prolonged high-intensity storms

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 49 to 54 degrees F
Frost-free period: 140 to 180 days

Rangeland

Range site:
Redbank family—Loamy Bottom (Basin Big Sagebrush)
Green River family—Semiwet Saline Streambank (Fremont Cottonwood)
Composition of potential plant community:
Redbank family—55 percent grasses, 5 percent forbs, and 40 percent shrubs
Green River family—60 percent grasses, 5 percent forbs, and 35 percent shrubs
Important plants:
Redbank family—western wheatgrass, blue grama, basin big sagebrush, and fourwing saltbush
Green River family—inland saltgrass, alkali sacaton, saltcedar, coyote willow, and Fremont cottonwood
General management considerations:
• The suitability for range seeding is only fair because of the low annual precipitation and the hazard of flooding on the Green River family soils.
• Trafficability over unsurfaced roads is only fair because of the numerous gullies and the occasional hazard of flooding.
• Brush management can improve deteriorated areas of range that are producing more woody shrubs than would be present in the potential plant community.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• Brush can be controlled by prescribed burning, chemical treatment, and mechanical treatment.
• If plant cover is disturbed, protection from flooding is needed to control gullying, streambank cutting, and sheet erosion.
• To control erosion in disturbed areas, intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, alfalfa, small burnet, and other native plants can be seeded.

Land Capability Classification

Capability subclass:
Redbank family soils—VIIe, nonirrigated
Green River family soils—VIIw, nonirrigated

44—Redhouse fine sandy loam, 2 to 8 percent slopes

Setting

Position on landscape: Fan terraces along valleys and canyon floors
Slope features: Shape—plane or concave; length—20 to 40 feet
Native plants: Shrubs and grasses
Elevation: 4,500 to 4,700 feet

Characteristics of the Redhouse Soil

Typical profile:
0 to 5 inches—reddish brown fine sandy loam
5 to 13 inches—red sandy clay loam
13 to 60 inches—red gravelly sandy clay loam and sandy clay loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderately high
Water-supplying capacity: Moderately low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent very deep, sandy soils that are adjacent to stream channels and that support greasewood and seepweed
• About 10 percent very deep, highly saline, loamy soils that are on alluvial fans and that support black greasewood and shadscale
• About 5 percent very deep, loamy soils that are on alluvial fans and that support fourwing saltbush, Indian ricegrass, and galleta

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The severe hazard of wind erosion and the moderate hazard of water erosion

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 160 to 200 days

Rangeland

Range site: Desert Loam (Shadscale)
Composition of the potential plant community: 35 percent grasses, 10 percent forbs, and 55 percent shrubs
Important plants: Shadscale, Indian ricegrass, bud sagebrush, winterfat, and galleta
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation.
• Trafficability over unsurfaced roads is good.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Land Capability Classification

Capability subclass: VIIe, nonirrigated

45—Rizno-Barx-Yarts complex

Setting

Position on landscape: Mesas and structural benches
Slope range: 3 to 30 percent
Native plants: Trees, shrubs, and grasses
Elevation: 5,200 to 8,000 feet

Composition

Rizno soil and similar inclusions: 35 percent
Barx soil and similar inclusions: 25 percent
Yarts soil and similar inclusions: 20 percent
Contrasting inclusions: 20 percent

Characteristics of the Rizno Soil

Position on landscape: Mesas and structural benches; near slope breaks and areas of Rock outcrop and intermixed with areas of the Yarts soil; on south-facing slopes at elevations of more than 7,000 feet
Slope range: 3 to 15 percent
Slope features: Shape—plane; length—less than 10 feet
Typical profile:
0 to 5 inches—light reddish brown fine sandy loam
5 to 19 inches—light reddish brown fine sandy loam
19 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low or low
Water-supplying capacity: Low or moderately low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Barx Soil

Position on landscape: Mesas and structural benches in basins
Slope range: 4 to 10 percent
Slope features: Shape—concave; length—40 to 80 feet
Typical profile:
0 to 9 inches—brown very fine sandy loam
9 to 32 inches—strong brown and yellowish red sandy clay loam
32 to 60 inches—brown sandy clay loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderately high or high
Water-supplying capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Slow
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Yarts Soil

Position on landscape: Hillsides of structural benches adjacent to the Rizno soil and areas of Rock outcrop; on south-facing slopes, which are at elevations of more than 6,500 feet and are dissected by numerous small drainageways
Slope range: 5 to 30 percent
Slope features: Shape—convex; length—20 to 40 feet
Typical profile:
0 to 5 inches—yellowish red fine sandy loam
5 to 60 inches—yellowish red fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or moderately high
Water-supplying capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Severe
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 10 percent moderately deep, loamy soils that are associated on the landscape with the Rizno soil and

that support Wyoming big sagebrush
• About 10 percent Rock outcrop

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A limited depth to bedrock and a severe hazard of water erosion

Climate-related factors

Average annual precipitation: 12 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 100 to 140 days

Rangeland

Barx

Range site: Upland Loam (Basin Big Sagebrush)
Composition of the potential plant community: 60 percent grasses, 5 percent forbs, and 35 percent shrubs
Important plants: Wyoming big sagebrush, Indian ricegrass, needleandthread, and blue grama

Woodland

Rizno

Woodland site: Upland Shallow Loam (Pinyon-Utah Juniper)
Overstory canopy: 25 to 35 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 10 percent grasses, 10 percent forbs, and 80 percent shrubs
Important plants: Indian ricegrass, Bigelow sagebrush, and Mormon tea
Site index: 40 for pinyon and Utah juniper
Average productivity: Low
Average yield per acre: 4.5 cords
Potential for post or Christmas tree production: Poor

Yarts

Woodland site: Upland Dissected Slopes (Pinyon-Utah Juniper)
Overstory canopy: 35 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 15 percent grasses, 10 percent forbs, and 75 percent shrubs
Important plants: Roundleaf buffaloberry, Indian ricegrass, Mormon tea, and bottlebrush squirreltail
Site index: 44 for pinyon and Utah juniper
Average productivity: Moderately low
Average yield per acre: 5 cords
Potential for post or Christmas tree production: Fair

General Management Considerations

• The suitability for range seeding is poor because of the severe hazard of water erosion, a limited depth to bedrock, and the low available water capacity.
• Trafficability over unsurfaced roads is generally good, except in areas where dissected slopes must be crossed.
• Pinyon and juniper will invade in areas of deep soils when the potential plant community has been depleted.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, alfalfa, small burnet, prostrate kochia, and other native plants can be seeded.
• Properly designed road drainage systems that include culverts can help to control erosion.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

46—Rizno-Cahona-Rock outcrop complex

Setting

Position on landscape: Mesas
Slope range: 1 to 15 percent
Native plants: Trees, shrubs, and grasses
Elevation: 5,800 to 7,000 feet

Composition

Rizno soil and similar inclusions: 50 percent
Cahona soil and similar inclusions: 25 percent
Rock outcrop: 10 percent
Contrasting inclusions: 15 percent

Characteristics of the Rizno Soil

Position on landscape: Mesas near slope breaks and areas of Rock outcrop
Slope range: 3 to 15 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 5 inches—light reddish brown fine sandy loam
5 to 19 inches—light reddish brown fine sandy loam
19 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low or low
Water-supplying capacity: Low or moderately low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Cahona Soil

Position on landscape: Mesas
Slope range: 1 to 8 percent
Slope features: Shape—plane or concave; length—80 to 100 feet
Typical profile:
0 to 3 inches—reddish brown very fine sandy loam
3 to 27 inches—yellowish red and reddish yellow sandy clay loam
27 to 60 inches—pink loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderately high
Water-supplying capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of Rock Outcrop

• Rock outcrop consists of exposures of sandstone bedrock occurring as slickrock, cliffs, and ledges.

Contrasting Inclusions

• About 10 percent deep, stony soils that are on steep hillsides and that support pinyon and Utah juniper
• About 5 percent moderately deep, silty soils that support Wyoming big sagebrush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A limited depth to bedrock, the Rock outcrop, and the hazard of erosion

Climate-related factors

Average annual precipitation: 12 to 15 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 100 to 140 days

Rangeland

Cahona

Range site: Upland Loam (Basin Big Sagebrush)
Composition of the potential plant community: 60 percent grasses, 5 percent forbs, and 35 percent shrubs
Important plants: Wyoming big sagebrush, Indian ricegrass, needleandthread, and blue grama

Woodland

Rizno

Woodland site: Upland Shallow Loam (Pinyon-Utah Juniper)
Overstory canopy: 25 to 35 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 10 percent grasses, 10 percent forbs, and 80 percent shrubs
Important plants: Indian ricegrass, Bigelow sagebrush, and Mormon tea
Site index: 40 for pinyon and Utah juniper
Average productivity: Low
Average yield per acre: 4.5 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is poor because of the limited depth to bedrock, the low available water capacity, and the Rock outcrop.
• Trafficability over unsurfaced roads is only fair.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• Properly designed road drainage systems that include culverts can help to control erosion.
• To control erosion in disturbed areas, pubescent wheatgrass, crested wheatgrass, alfalfa, small burnet, prostrate kochia, and other native plants can be seeded.

Land Capability Classification

Capability subclass: Rizno and Cahona soils—VIIs, nonirrigated

47—Rizno-Littlenan-Bodot association

Setting

Position on landscape: Structural benches
Slope range: 3 to 50 percent
Native plants: Trees, shrubs, and grasses
Elevation: 4,700 to 6,000 feet

Composition

Rizno soil and similar inclusions: 30 percent
Littlenan soil and similar inclusions: 20 percent
Bodot soil and similar inclusions: 20 percent
Contrasting inclusions: 30 percent

Characteristics of the Rizno Soil

Position on landscape: Edges of structural benches and ridges above the Littlenan and Bodot soils; underlain by sandstone bedrock
Slope range: 3 to 15 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 3 inches—reddish brown fine sandy loam
3 to 13 inches—reddish brown fine sandy loam

13 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low or low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Littlenan Soil

Position on landscape: Structural benches below the Rizno soil; underlain by shale bedrock
Slope range: 3 to 20 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 3 inches—light brown gravelly loam
3 to 14 inches—light brown silty clay loam
14 to 29 inches—light brown silty clay
29 inches—weathered shale bedrock
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderately low or moderate
Water-supplying capacity: Low or moderate
Potential rooting depth: 20 to 40 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate

Characteristics of the Bodot Soil

Position on landscape: Steep hillsides of structural benches; intermixed with areas of the Rizno soil
Slope range: 20 to 50 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 6 inches—light brown very cobbly loam
6 to 15 inches—light brownish gray clay loam
15 to 36 inches—light gray clay loam
36 inches—weathered shale bedrock
Content of rock fragments: 35 to 60 percent stones, cobbles, and gravel in the surface layer
Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderate
Water-supplying capacity: Moderately low or moderate
Potential rooting depth: 20 to 40 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate for the surface, severe below surface
Hazard of wind erosion: Slight

Contrasting Inclusions

• About 10 percent very deep, loamy soils that are on alluvial fans and that support Wyoming big sagebrush and galleta
• About 10 percent deep, very stony soils that are on steep hillsides and that support pinyon and Utah juniper
• About 5 percent very deep, loamy soils that are along stream channels and that support big sagebrush
• About 5 percent Badland

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A limited depth to bedrock, the high content of clay, and the slope

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 49 to 53 degrees F
Frost-free period: 130 to 150 days

Rangeland

Littlenan

Range site: Alkali Fan (Castle Valley Saltbush)
Composition of the potential plant community: 35 percent grasses, 10 percent forbs, and 55 percent shrubs
Important plants: Galleta, Indian ricegrass, shadscale, and Castle Valley saltbush

Woodland

Rizno

Woodland site: Semidesert Shallow Loam (Utah Juniper-Pinyon)
Overstory canopy: 30 percent, consisting of Utah juniper and pinyon
Composition of the understory vegetation: 45 percent grasses, 10 percent forbs, and 45 percent shrubs
Important plants: Mexican cliffrose, galleta, Indian ricegrass, and bottlebrush squirreltail
Site index: 20 for Utah juniper and pinyon
Average productivity: Low
Average yield per acre: 3.5 cords
Potential for post or Christmas tree production: Poor

Bodot

Woodland site: Semidesert Shallow Clay (Utah Juniper-Pinyon)
Overstory canopy: 15 percent, consisting of Utah juniper and pinyon
Composition of the understory vegetation: 30 percent grasses, 5 percent forbs, and 65 percent shrubs

Important plants: Mexican cliffrose, shadscale, galleta, Indian ricegrass, and saline wildrye
Site index: 15 for Utah juniper and pinyon
Average productivity: Low
Average yield per acre: 3 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is very poor because of the low annual precipitation, the limited depth to bedrock, the high content of clay, and the slope.
• Trafficability over unsurfaced roads is poor because of the stickiness and slickness of the Littlenan and Bodot soils during wet periods.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

48—Rizno-Mido complex

Setting

Position on landscape: Structural benches
Slope range: 2 to 15 percent
Native plants: Trees, shrubs, and grasses
Elevation: 5,400 to 6,400 feet

Composition

Rizno soil and similar inclusions: 70 percent
Mido soil and similar inclusions: 25 percent
Contrasting inclusions: 5 percent

Characteristics of the Rizno Soil

Position on landscape: Slope breaks and hillsides of structural benches
Slope range: 3 to 15 percent
Slope features: Shape—convex; length—20 to 50 feet
Typical profile:
0 to 3 inches—yellowish red fine sandy loam
3 to 9 inches—yellowish red fine sandy loam
9 inches—sandstone bedrock
Depth class: Very shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 4 to 10 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Mido Soil

Position on landscape: Ridgetops and east- and northeast-facing slopes of structural benches; intermixed with areas of the Rizno soil
Slope range: 2 to 15 percent
Slope features: Shape—convex; length—20 to 40 feet
Typical profile:
0 to 10 inches—red loamy fine sand
10 to 60 inches—red loamy fine sand
Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Low or moderate
Water-supplying capacity: Low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 5 percent Rock outcrop occurring as cliffs and ledges

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The severe hazard of wind erosion and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 140 to 170 days

Rangeland

Mido

Range site: Semidesert Sand (Fourwing Saltbush)
Composition of the potential plant community: 55 percent grasses, 15 percent forbs, and 30 percent shrubs
Important plants: Indian ricegrass, Mormon tea, needleandthread, fourwing saltbush, and sandhill muhly

Woodland

Rizno

Woodland site: Semidesert Shallow Sandy Loam (Utah Juniper-Pinyon)
Overstory canopy: 15 to 20 percent, consisting of Utah juniper and pinyon
Composition of the understory vegetation: 20 percent grasses, 10 percent forbs, and 70 percent shrubs

Important plants: Blackbrush, Mormon tea, galleta, and Indian ricegrass
Site index: 40 for Utah juniper and pinyon
Average productivity: Low
Average yield per acre: 4.5 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is very poor because of the low annual precipitation, the limited depth to bedrock, and the severe hazard of wind erosion.
• Trafficability over unsurfaced roads is only fair because of the sandy texture.
• Disturbed areas are subject to severe wind erosion.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, prostrate kochia, Indian ricegrass, sand dropseed, and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

49—Rizno-Rock outcrop complex

Setting

Position on landscape: Structural benches
Slope range: 3 to 15 percent
Native plants: Trees and shrubs
Elevation: 5,200 to 7,800 feet

Composition

Rizno soil and similar inclusions: 65 percent
Rock outcrop: 25 percent
Contrasting inclusions: 10 percent

Characteristics of the Rizno Soil

Position on landscape: Structural benches; intermixed with areas of Rock outcrop; on south-facing slopes at elevations of more than 7,000 feet
Slope range: 3 to 15 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 5 inches—light reddish brown fine sandy loam
5 to 19 inches—light reddish brown fine sandy loam
19 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low or low
Water-supplying capacity: Low or moderately low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of Rock Outcrop

• Rock outcrop consists of bare exposures of sandstone bedrock occurring as slickrock and ledges.

Contrasting Inclusions

• About 5 percent very deep, stony soils that are on hillsides and that support pinyon and Utah juniper
• About 5 percent very deep, loamy soils that are on concave slopes and that support Wyoming big sagebrush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Rock outcrop and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 12 to 14 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 100 to 140 days

Woodland

Rizno

Woodland site: Upland Shallow Loam (Pinyon-Utah Juniper)
Overstory canopy: 25 to 35 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 10 percent grasses, 10 percent forbs, and 80 percent shrubs
Important plants: Indian ricegrass, Bigelow sagebrush, and Mormon tea
Site index: 40 for pinyon and Utah juniper
Average productivity: Low
Average yield per acre: 4.5 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is very poor because of a limited depth to bedrock, the Rock outcrop, and the low available water capacity.
• Trafficability over unsurfaced roads is good.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, pubescent wheatgrass, crested wheatgrass, alfalfa, yellow

sweetclover, prostrate kochia, and other native plants can be seeded.

Land Capability Classification

Capability subclass: Rizno soil—VIIs

50—Rizno-Ruinpoint-Rock outcrop complex

Setting

Position on landscape: Mesas
Slope range: 1 to 15 percent
Native plants: Trees, shrubs, and grasses
Elevation: 5,000 to 6,000 feet

Composition

Rizno soil and similar inclusions: 35 percent
Ruinpoint soil and similar inclusions: 25 percent
Rock outcrop: 20 percent
Contrasting inclusions: 20 percent

Characteristics of the Rizno Soil

Position on landscape: Edges of mesas; intermixed with areas of Rock outcrop
Slope range: 3 to 15 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 3 inches—reddish brown fine sandy loam
3 to 13 inches—reddish brown fine sandy loam
13 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low or low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Ruinpoint Soil

Position on landscape: Below ridgetops of mesas
Slope range: 1 to 8 percent
Slope features: Shape—concave; length—20 to 40 feet
Typical profile:
0 to 2 inches—yellowish red very fine sandy loam
2 to 13 inches—yellowish red silt loam
13 to 60 inches—reddish yellow silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderately high or high
Water-supplying capacity: Moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Medium
Hazard of water erosion: Severe
Hazard of wind erosion: Severe

Characteristics of Rock Outcrop

• Rock outcrop consists of bare exposures of sandstone bedrock occurring as slickrock, cliffs, and ledges.

Contrasting Inclusions

• About 20 percent moderately deep, silty soils that support Wyoming big sagebrush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Rock outcrop and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 130 to 150 days

Rangeland

Ruinpoint

Range site: Semidesert Loam (Wyoming Big Sagebrush)
Composition of the potential plant community: 45 percent grasses, 10 percent forbs, and 45 percent shrubs
Important plants: Indian ricegrass, galleta, bottlebrush squirreltail, winterfat, and Wyoming big sagebrush

Woodland

Rizno

Woodland site: Semidesert Shallow Loam (Utah Juniper-Pinyon)
Overstory canopy: 30 percent, consisting of Utah juniper and pinyon
Composition of the understory vegetation: 45 percent grasses, 10 percent forbs, and 45 percent shrubs
Important plants: Indian ricegrass, Mexican cliffrose, galleta, and bottlebrush squirreltail
Site index: 20 for Utah juniper and pinyon
Average productivity: Low
Average yield per acre: 3.5 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is very poor because of the low annual precipitation, the low water-supplying capacity of the Rizno soil, and the Rock outcrop.
• Trafficability over unsurfaced roads is only fair because of the Rock outcrop on ledges and the slickness of the Ruinpoint soil during wet periods.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, prostrate kochia and other native plants can be seeded.
• Properly designed road drainage systems that include culverts can help to control erosion.

Land Capability Classification

Capability subclass: Rizno and Ruinpoint soils—VIIs

51—Rizno-Skos-Rock outcrop complex

Setting

Position on landscape: Structural benches
Slope range: 3 to 30 percent
Native plants: Trees, shrubs, and grasses
Elevation: 4,700 to 6,800 feet

Composition

Rizno soil and similar inclusions: 40 percent
Skos soil and similar inclusions: 20 percent
Rock outcrop: 20 percent
Contrasting inclusions: 20 percent

Characteristics of the Rizno Soil

Position on landscape: Upper part of structural benches that have ledges of Rock outcrop
Slope range: 3 to 15 percent
Slope features: Shape—convex; length—20 to 40 feet
Typical profile:
0 to 3 inches—yellowish red fine sandy loam
3 to 9 inches—yellowish red fine sandy loam
9 inches—sandstone bedrock
Depth class: Very shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 4 to 10 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Skos Soil

Position on landscape: Structural benches; intermixed with areas of the Rizno soil and areas of Rock outcrop on the lower side slopes
Slope range: 4 to 30 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 1 inch—reddish brown channery loam
1 to 6 inches—reddish brown very channery sandy clay loam
6 inches—sandstone bedrock
Depth class: Very shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 4 to 10 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of Rock Outcrop

• Rock outcrop consists of bare exposures of sandstone bedrock. It occurs as slickrock and ledges throughout the unit.

Contrasting Inclusions

• About 10 percent very deep, loamy soils that are on broad structural benches and that support Indian ricegrass, needleandthread, and fourwing saltbush
• About 10 percent moderately deep, loamy soils that are underlain by a cemented hardpan and that support blackbrush and galleta

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Rock outcrop and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 49 to 54 degrees F
Frost-free period: 120 to 160 days

Rangeland

Skos

Range site: Semidesert Shallow Sandy Loam (Blackbrush)
Composition of the potential plant community: 15 percent grasses, 5 percent forbs, and 80 percent shrubs
Important plants: Blackbrush, galleta, and Torrey Mormon tea

Woodland

Rizno

Woodland site: Semidesert Shallow Sandy Loam (Utah Juniper-Pinyon)
Overstory canopy: 15 to 20 percent, consisting of Utah juniper and pinyon
Composition of the understory vegetation: 20 percent

grasses, 10 percent forbs, and 70 percent shrubs
Important plants: Blackbrush, Mormon tea, Indian ricegrass, and galleta
Site index: 40 for Utah juniper and pinyon
Average productivity: Low
Average yield per acre: 4.5 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is very poor because of the low annual precipitation, the very low available water capacity, and the Rock outcrop.
• Trafficability over unsurfaced roads is good, except in areas where the Rock outcrop occurs as ledges.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, prostrate kochia and other native plants can be seeded.

Land Capability Classification

Capability subclass: Rizno and Skos soils—VIIe

52—Rizno-Strych association

Setting

Position on landscape: Hillsides of canyons
Slope range: 3 to 70 percent
Native plants: Trees, shrubs, and grasses
Elevation: 5,000 to 6,000 feet

Composition

Rizno soil and similar inclusions: 40 percent
Strych soil and similar inclusions: 35 percent
Contrasting inclusions: 25 percent

Characteristics of the Rizno Soil

Position on landscape: Narrow ledges on south-facing hillsides of structural benches
Slope range: 3 to 15 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 3 inches—reddish brown fine sandy loam
3 to 13 inches—reddish brown fine sandy loam
13 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low or low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Strych Soil

Position on landscape: Steep north- and east-facing hillsides
Slope range: 50 to 70 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 12 inches—reddish brown very stony fine sandy loam
12 to 16 inches—reddish brown very cobbly fine sandy loam
16 to 60 inches—yellowish red very cobbly fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Water-supplying capacity: Moderately low to moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Contrasting Inclusions

• About 10 percent Rubble land at the base of slopes
• About 10 percent very deep, loamy soils that are on alluvial fans and that support Wyoming big sagebrush
• About 5 percent Rock outcrop occurring as cliffs and ledges

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope, stoniness, and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 10 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 100 to 140 days

Woodland

Rizno

Woodland site: Semidesert Shallow Loam (Utah Juniper-Pinyon)
Overstory canopy: 30 percent, consisting of Utah juniper and pinyon
Composition of the understory vegetation: 45 percent grasses, 10 percent forbs, and 45 percent shrubs
Important plants: Indian ricegrass, Mexican cliffrose,

galleta, and bottlebrush squirreltail
Site index: 20 for Utah juniper and pinyon
Average productivity: Low
Average yield per acre: 3.5 cords
Potential for post or Christmas tree production: Poor

Strych

Woodland site: Upland Very Steep Stony Loam (Pinyon-Utah Juniper)
Overstory canopy: 25 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 45 percent grasses, 5 percent forbs, and 50 percent shrubs
Important plants: Saline wildrye, Utah serviceberry, Indian ricegrass, and birchleaf mountainmahogany
Site index: 27 for pinyon and Utah juniper
Average productivity: Moderately low
Average yield per acre: 3 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is very poor because of the low annual precipitation and the slope.
• Trafficability over unsurfaced roads is poor because of the slope and large stones and boulders.
• The slope limits access by livestock.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

53—Robroost family-Gypsum land complex

Setting

Position on landscape: Hogbacks
Slope range: 3 to 50 percent
Native plants: Shrubs
Elevation: 4,300 to 5,200 feet

Composition

Robroost family soils and similar inclusions: 50 percent
Gypsum land: 30 percent
Contrasting inclusions: 20 percent

Characteristics of the Robroost Family Soils

Position on landscape: Dissected ridges and the upper side slopes; intermixed with areas of Gypsum land
Slope range: 3 to 50 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 1 inch—yellowish red very fine sandy loam
1 to 9 inches—light reddish brown gravelly fine sandy loam
9 to 34 inches—pink fine sandy loam and gravelly fine sandy loam
34 to 60 inches—pink very fine sandy loam and gravelly very fine sandy loam
Special profile features: Discontinuous accumulations of gypsum throughout
Depth class: Deep or very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or moderately high
Water-supplying capacity: Moderately low
Potential rooting depth: 40 to more than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Rapid
Hazard of water erosion: Severe
Hazard of wind erosion: Severe

Characteristics of Gypsum Land

• Gypsum land consists of exposures of nearly pure, soft gypsum. The surface is unstable, erodes easily, and lacks organic matter. The land is intermixed with soils in the Robroost family.

Contrasting Inclusions

• About 10 percent shallow, loamy soils that are on ledges and that support blackbrush
• About 5 percent Badland
• About 5 percent Rock outcrop

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A high content of gypsum; steep, unstable slopes; and the severe hazard of water erosion

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 160 to 200 days

Rangeland

Robroost family

Range site: Desert Very Shallow Gypsum (Torrey Mormon Tea)
Composition of the potential plant community: 20 percent grasses, 20 percent forbs, and 60 percent shrubs
Important plants: Torrey Mormon tea, galleta, shadscale, and Indian ricegrass
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation, the slope, and the high content of gypsum.
• Trafficability over unsurfaced roads is poor because of the low strength of gypsum-affected soils, the unstable slopes, and the severe hazard of water erosion.

Land Capability Classification

Capability subclass: Robroost family soils—VIIe, nonirrigated

54—Rock outcrop-Piute-Sheppard complex

Setting

Position on landscape: Structural benches
Slope range: 2 to 15 percent
Native plants: Shrubs and grasses
Elevation: 3,700 to 5,000 feet

Composition

Rock outcrop: 50 percent
Piute soil and similar inclusions: 20 percent
Sheppard soil and similar inclusions: 15 percent
Contrasting inclusions: 15 percent

Characteristics of Rock Outcrop

• Rock outcrop consists of bare exposures of sandstone bedrock. It is intermixed with areas of the Piute and Sheppard soils and occurs as bare slickrock, ledges, and cliffs. Utah juniper and shrubs are in cracks and crevices. Broad exposures of bedrock contribute large amounts of runoff to local drainageways.

Characteristics of the Piute Soil

Position on landscape: Structural benches that have areas of slickrock
Slope range: 4 to 15 percent
Slope features: Shape—plane or convex; length—less than 10 feet
Typical profile:
0 to 9 inches—reddish yellow loamy fine sand
9 inches—sandstone bedrock
Depth class: Very shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 5 to 10 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Severe
Hazard of wind erosion: Severe

Characteristics of the Sheppard Soil

Position on landscape: Ridgetops and east-facing slopes of structural benches in an irregular pattern of hummocks, 3 to 8 feet high and 3 to 10 feet in diameter
Slope range: 2 to 15 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 6 inches—reddish yellow loamy fine sand
6 to 60 inches—reddish yellow loamy fine sand
Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Rapid
Available water capacity: Low or moderately low
Water-supplying capacity: Low
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Very slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 5 percent shallow soils that are on structural benches near Lake Powell and that support shadscale
• About 5 percent very deep, loamy soils that are along drainageways and that support saltcedar and willow
• About 5 percent shallow, loamy soils that are underlain by a cemented hardpan on remnant fans and that support blackbrush and galleta

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Rock outcrop, a limited depth to bedrock, and the severe hazard of wind erosion

Climate-related factors

Average annual precipitation: 6 to 8 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 160 to 200 days

Rangeland

Range site:
Piute—Desert Shallow Sandy Loam (Blackbrush)
Sheppard—Desert Sand (Sand Sagebrush)
Composition of the potential plant community:
Piute—20 percent grasses, 5 percent forbs, and 75 percent shrubs
Sheppard—55 percent grasses, 15 percent forbs, and 30 percent shrubs
Important plants:
Piute—blackbrush, galleta, Indian ricegrass, and Mormon tea
Sheppard—Indian ricegrass, sandhill muhly, sand dropseed, and sand sagebrush
General management considerations:
• The suitability for range seeding is very poor because of the very low available water capacity of the Piute soil, the severe hazard of wind erosion, the low annual precipitation, and the Rock outcrop.

• Trafficability over unsurfaced roads is poor because of the sandy texture and cliffs and ledges.
• Disturbed areas are subject to severe wind erosion.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, Indian ricegrass, spike dropseed, and prostrate kochia should be drill seeded.

Land Capability Classification

Capability subclass: Piute and Sheppard soils—VIIs

55—Rock outcrop-Piute-Skos association

Setting

Position on landscape: Structural benches
Slope range: 4 to 30 percent
Native plants: Shrubs and grasses
Elevation: 4,700 to 6,000 feet

Composition

Rock outcrop: 45 percent
Piute soil and similar inclusions: 20 percent
Skos soil and similar inclusions: 20 percent
Contrasting inclusions: 15 percent

Characteristics of Rock Outcrop

• Rock outcrop consists of bare exposures of sandstone bedrock. It occurs as bare slickrock, rock monoliths, and steep to nearly vertical exposures of bedrock. Utah juniper and shrubs are in cracks and crevices. Broad exposures of bedrock contribute large amounts of runoff to local drainageways.

Characteristics of the Piute Soil

Position on landscape: Structural benches that have areas of slickrock
Slope range: 4 to 15 percent
Slope features: Shape—plane or convex; length—less than 10 feet
Typical profile:
0 to 10 inches—reddish yellow loamy fine sand
10 inches—sandstone bedrock
Depth class: Very shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 5 to 10 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Severe
Hazard of wind erosion: Severe

Characteristics of the Skos Soil

Position on landscape: Structural benches on side slopes and slope breaks
Slope range: 4 to 30 percent (dominantly 10 to 30 percent)
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 3 inches—reddish brown channery sandy loam
3 to 6 inches—reddish brown very channery sandy clay loam
6 inches—sandstone bedrock
Depth class: Very shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 4 to 10 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Included Areas

Similar inclusions:
• A few small areas of soils that are similar to the Skos soil but have slopes of 30 to 50 percent
Contrasting inclusions:
• About 10 percent very deep, sandy soils that are on concave slopes and that support Indian ricegrass, Mormon tea, and sand sagebrush
• About 5 percent shallow, loamy soils that are on ridgetops above Clay Hills Divide and that support Utah juniper and pinyon

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Rock outcrop and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 49 to 54 degrees F
Frost-free period: 140 to 180 days

Rangeland

Range site:
Piute—Semidesert Shallow Sandy Loam (Blackbrush)
Skos—Semidesert Shallow Sandy Loam (Shadscale)
Composition of the potential plant community:
Piute—15 percent grasses, 5 percent forbs, and 80 percent shrubs

Skos—40 percent grasses, 10 percent forbs, and 50 percent shrubs

Important plants:

Piute—blackbrush, galleta, and Torrey Mormon tea

Skos—shadscale, Indian ricegrass, galleta, and Bigelow sagebrush

General management considerations:

• The suitability for range seeding is very poor because of the Rock outcrop, the low annual precipitation, and the low available water capacity.

• Trafficability over unsurfaced roads is poor because of cliffs and ledges.

Suitable management practices:

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

• To control erosion in disturbed areas, prostrate kochia and other native plants can be seeded.

Land Capability Classification

Capability subclass: Piute and Skos soils—VIIs

56—Rock outcrop-Strych-Rizno association

Setting

Position on landscape: Hillsides and mountainsides
Slope range: 15 to 70 percent
Native plants: Trees, shrubs, and grasses
Elevation: 5,000 to 7,000 feet

Composition

Rock outcrop: 35 percent
Strych soil and similar inclusions: 30 percent
Rizno soil and similar inclusions: 25 percent
Contrasting inclusions: 10 percent

Characteristics of Rock Outcrop

• Rock outcrop consists of bare exposures of sandstone bedrock. It occurs as slickrock, cliffs, and ledges.

Characteristics of the Strych Soil

Position on landscape: Steep mountainsides intermixed with cliffs and ledges
Slope range: 50 to 70 percent
Slope features: Shape—convex; length—2 to 10 feet
Typical profile:

0 to 12 inches—reddish brown very stony fine sandy loam

12 to 16 inches—reddish brown very cobbly fine sandy loam

16 to 60 inches—yellowish red very cobbly fine sandy loam

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Water-supplying capacity: Moderately low to moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Rizno Soil

Position on landscape: Narrow ledges on hillsides in areas of Rock outcrop
Slope range: 15 to 30 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:

0 to 5 inches—light reddish brown gravelly fine sandy loam

5 to 19 inches—light reddish brown fine sandy loam

19 inches—sandstone bedrock

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low or low
Water-supplying capacity: Low or moderately low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Severe
Hazard of wind erosion: Slight

Contrasting Inclusions

• About 5 percent deep, very stony soils that are on the less steep slopes and that support pinyon and Utah juniper

• About 5 percent very deep, loamy soils that are in drainageways and that support basin big sagebrush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Rock outcrop and the slope

Climate-related factors

Average annual precipitation: 12 to 16 inches
Mean annual air temperature: 46 to 51 degrees F
Frost-free period: 100 to 140 days

Woodland

Strych

Woodland site: Upland Very Steep Stony Loam (Pinyon-Utah Juniper)

Overstory canopy: 25 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 45 percent grasses, 5 percent forbs, and 50 percent shrubs
Important plants: Saline wildrye, Utah serviceberry, Indian ricegrass, and birchleaf mountainmahogany
Site index: 27 for pinyon and Utah juniper
Average productivity: Moderately low
Average yield per acre: 3 cords
Potential for post or Christmas tree production: Poor

Rizno

Woodland site: Upland Shallow Loam (Pinyon-Utah Juniper)
Overstory canopy: 25 to 35 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 10 percent grasses, 10 percent forbs, and 80 percent shrubs
Important plants: Indian ricegrass, Bigelow sagebrush, and Mormon tea
Site index: 40 for pinyon and Utah juniper
Average productivity: Low
Average yield per acre: 4.5 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

- The suitability for range seeding is very poor because of the Rock outcrop, the limited depth to bedrock, and the slope.
- Trafficability over unsurfaced roads is poor because of cliffs and ledges and the slope.
- The slope limits access by livestock.

Land Capability Classification

Capability subclass: Strych and Rizno soils—VIIs

57—Rubble land-Rock outcrop complex

Setting

Position on landscape: South- and east-facing hillsides
Elevation: 4,500 to 6,000 feet

Composition

Rubble land: 60 percent
Rock outcrop: 30 percent
Contrasting inclusions: 10 percent

Characteristics of Rubble land

- Rubble land consists of areas on steep and very steep hillsides that have boulders and stones covering over 90 percent of the surface. It is nearly bare of vegetation and occurs below canyon escarpments.

Characteristics of Rock Outcrop

- Rock outcrop consists of bare exposures of sandstone bedrock on ledges and nearly vertical cliffs above areas of the Rubble land.

Contrasting Inclusions

- About 10 percent deep, very stony soils that are on very steep slopes and that support Indian ricegrass, saline wildrye, and Mormon tea

Land Capability Classification

Capability class: VIII

58—Ruinpoint-Cahona association

Setting

Position on landscape: Mesas
Slope range: 1 to 8 percent
Native plants: Shrubs and grasses
Elevation: 4,700 to 6,000 feet

Composition

Ruinpoint soil and similar inclusions: 45 percent
Cahona soil and similar inclusions: 30 percent
Contrasting inclusions: 25 percent

Characteristics of the Ruinpoint Soil

Position on landscape: Lower part of mesas at elevations of 4,700 to 5,500 feet
Slope range: 1 to 8 percent
Slope features: Shape—plane or convex; length—40 to 80 feet
Typical profile:
0 to 2 inches—yellowish red very fine sandy loam
2 to 13 inches—yellowish red silt loam
13 to 60 inches—reddish yellow silt loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderately high or high
Water-supplying capacity: Moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Slow
Hazard of water erosion: Moderate
Hazard of wind erosion: Severe

Characteristics of the Cahona Soil

Position on landscape: Upper part of mesas at elevations of 5,400 to 6,000 feet
Slope range: 1 to 5 percent
Slope features: Shape—plane; length—40 to 80 feet
Typical profile:
0 to 3 inches—yellowish red silt loam
3 to 15 inches—yellowish red sandy clay loam
15 to 60 inches—yellowish red loam
Depth class: Very deep

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderately high
Water-supplying capacity: Moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Slow
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate

Contrasting Inclusions

- About 10 percent moderately deep, silty soils that are near the edges of mesas and near areas of Rock outcrop and that support Wyoming big sagebrush
- About 10 percent shallow, loamy soils that support Utah juniper and pinyon
- About 5 percent moderately deep, clayey soils that are underlain by shale bedrock and that support galleta and Nuttall saltbush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A severe hazard of wind erosion

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 130 to 150 days

Rangeland

Range site: Semidesert Loam (Wyoming Big Sagebrush)
Composition of the potential plant community: 45 percent grasses, 10 percent forbs, and 45 percent shrubs
Important plants: Indian ricegrass, galleta, bottlebrush squirreltail, winterfat, and Wyoming big sagebrush
General management considerations:

- The suitability for range seeding is poor because of the low annual precipitation and the hazard of erosion.
- Trafficability over unsurfaced roads is only fair because of rutting and slickness during wet periods.
- Brush management can improve deteriorated areas of range that are producing more woody shrubs than would be present in the potential plant community.

Suitable management practices:

- Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
- Brush can be controlled by prescribed burning, chemical treatment, and mechanical treatment.
- To control erosion in disturbed areas, prostrate kochia and other native plants can be seeded.

Land Capability Classification

Capability subclass: VIIe, nonirrigated

59—Shalet-Moenkopie-Badland complex

Setting

Position on landscape: Structural benches
Slope range: 2 to 20 percent
Native plants: Shrubs and grasses
Elevation: 4,000 to 5,000 feet

Composition

Shalet soil and similar inclusions: 45 percent
Moenkopie soil and similar inclusions: 30 percent
Badland: 20 percent
Contrasting inclusions: 5 percent

Characteristics of the Shalet Soil

Position on landscape: Structural benches; intermixed with areas of the Moenkopie soil
Slope range: 4 to 15 percent
Slope features: Shape—plane and convex; length—10 to 20 feet
Typical profile:
0 to 2 inches—reddish brown clay loam
2 to 12 inches—reddish brown clay loam
12 inches—unweathered shale bedrock
Depth class: Very shallow or shallow
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very low or low
Water-supplying capacity: Very low
Potential rooting depth: 5 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Severe
Hazard of wind erosion: Moderate

Characteristics of the Moenkopie Soil

Position on landscape: Hillsides of structural benches; intermixed with areas of the Shalet soil
Slope range: 2 to 20 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 1 inch—red very gravelly fine sandy loam
1 to 9 inches—red fine sandy loam
9 inches—sandstone bedrock
Depth class: Very shallow or shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 5 to 20 inches
Organic matter content in the surface layer: Very low

Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of Badland

• Badland consists of steep and very steep, barren areas of actively eroding shale bedrock and shale bedrock interbedded with thin layers of sandstone bedrock. The landscape is highly dissected and is characterized by angular ridges and nose slopes.

Contrasting Inclusions

• About 5 percent Rock outcrop occurring as cliffs and ledges

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Badland and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 5 to 8 inches
Mean annual air temperature: 52 to 56 degrees F
Frost-free period: 160 to 200 days

Rangeland

Range site:
Shalet—Desert Shallow Clay (Shadscale)
Moenkopie—Desert Shallow Sandy Loam (Blackbrush)
Composition of the potential plant community:
Shalet—40 percent grasses, 10 percent forbs, and 50 percent shrubs
Moenkopie—20 percent grasses, 5 percent forbs, and 75 percent shrubs
Important plants:
Shalet—galleta, shadscale, Mormon tea, and Castle Valley saltbush
Moenkopie—blackbrush, galleta, Indian ricegrass, and Mormon tea
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation and the very low available water capacity.
• Trafficability over unsurfaced roads is poor because of numerous drainage channels dissecting this unit and the Badland.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Land Capability Classification

Capability subclass: Shalet and Moenkopie soils—VIIs, nonirrigated

60—Skos channery fine sandy loam, 4 to 30 percent slopes

Setting

Position on landscape: Structural benches and hillsides
Slope features: Shape—plane or convex; length—less than 10 feet
Native plants: Trees, shrubs, and grasses
Elevation: 5,600 to 7,000 feet

Characteristics of the Skos Soil

Typical profile:
0 to 2 inches—brown channery fine sandy loam
2 to 13 inches—strong brown very gravelly clay loam
13 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Water-supplying capacity: Very low or low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Contrasting Inclusions

• About 5 percent Rock outcrop
• About 5 percent shallow, stony soils that are on steep slopes and that support pinyon and Utah juniper
• About 5 percent moderately deep, loamy soils that are on concave slopes and that support Wyoming big sagebrush

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A limited depth to bedrock and the slope

Climate-related factors

Average annual precipitation: 12 to 14 inches
Mean annual air temperature: 47 to 52 degrees F
Frost-free period: 100 to 130 days

Woodland

Woodland site: Upland Shallow Loam (Pinyon-Utah Juniper)
Overstory canopy: 25 to 35 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 10 percent grasses, 10 percent forbs, and 80 percent shrubs
Important plants: Indian ricegrass, Bigelow sagebrush, and Mormon tea

Site index: 40 for pinyon and Utah juniper
Average productivity: Low
Average yield per acre: 4.5 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is very poor because of a limited depth to bedrock, the low available water capacity, and a high content of rock fragments on the surface.
• Trafficability over unsurfaced roads is good.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, pubescent wheatgrass, crested wheatgrass, alfalfa, small burnet, prostrate kochia, and other adapted native plants can be seeded.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

61—Skos-Rock outcrop complex

Setting

Position on landscape: Structural benches
Slope range: 4 to 30 percent
Native plants: Shrubs and grasses
Elevation: 4,700 to 6,600 feet

Composition

Skos soil and similar inclusions: 80 percent
Rock outcrop: 10 percent
Contrasting inclusions: 10 percent

Characteristics of the Skos Soil

Position on landscape: Structural benches on side slopes and slope breaks; intermixed with areas of Rock outcrop
Slope range: 4 to 30 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 3 inches—reddish brown channery sandy loam
3 to 6 inches—reddish brown very channery sandy clay loam
6 inches—sandstone bedrock
Depth class: Very shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 4 to 10 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of Rock Outcrop

• Rock outcrop consists of bare exposures of sandstone bedrock. It is intermixed with areas of the Skos soil and occurs as slickrock and as cliffs and ledges.

Included Areas

Similar inclusions:
• A few small areas of soils that are similar to the Skos soil but have slopes of 30 to 50 percent
Contrasting inclusions:
• About 10 percent shallow, loamy soils that are on gently sloping benches and that support shadscale, galleta, and Mormon tea

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Rock outcrop and a limited depth to bedrock

Climate-related factors:

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 49 to 54 degrees F
Frost-free period: 140 to 160 days

Rangeland

Skos

Range site: Semidesert Shallow Sandy Loam (Shadscale)
Composition of the potential plant community: 40 percent grasses, 10 percent forbs, and 50 percent shrubs
Important plants: Shadscale, Indian ricegrass, galleta, and Bigelow sagebrush
General management considerations:
• The suitability for range seeding is very poor because of the Rock outcrop, the low annual precipitation, and the low available water capacity.
• Trafficability over unsurfaced roads is good, except in areas where the Rock outcrop occurs as cliffs and ledges.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, prostrate kochia and other native plants can be seeded.

Land Capability Classification

Capability subclass: Skos soil—VIIs, nonirrigated

62—Skos, warm-Rock outcrop complex

Setting

Position on landscape: Structural benches
Slope range: 4 to 30 percent
Native plants: Shrubs and grasses
Elevation: 5,000 to 6,000 feet

Composition

Skos soil and similar inclusions: 55 percent
Rock outcrop: 15 percent
Contrasting inclusions: 30 percent

Characteristics of the Skos Soil

Position on landscape: Structural benches; intermixed with areas of Rock outcrop
Slope range: 4 to 30 percent
Slope features: Shape—convex; length—10 to 20 feet
Typical profile:
0 to 1 inch—reddish brown channery loam
1 to 6 inches—reddish brown very channery sandy clay loam
6 inches—sandstone bedrock
Depth class: Very shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Water-supplying capacity: Very low
Potential rooting depth: 4 to 10 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of Rock Outcrop

• Rock outcrop consists of bare exposures of sandstone bedrock. It is intermixed with areas of the Skos soil and occurs as slickrock and as cliffs or ledges.

Contrasting Inclusions

• About 15 percent shallow, loamy soils that support blackbrush
• About 10 percent very deep, sandy soils that are on concave slopes and that support sand sagebrush, Indian ricegrass, and Mormon tea
• About 5 percent Badland on dissected slopes

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The Rock outcrop and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 140 to 170 days

Rangeland

Skos

Range site: Semidesert Shallow Sandy Loam (Blackbrush)
Composition of the potential plant community: 15 percent grasses, 5 percent forbs, and 80 percent shrubs
Important plants: Blackbrush, galleta, and Torrey Mormon tea
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation, a limited depth to bedrock, and the Rock outcrop.
• Trafficability over unsurfaced roads is good, except in areas where the Rock outcrop occurs as cliffs and ledges.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, crested wheatgrass, ladak alfalfa, and other native plants can be seeded.

Land Capability Classification

Capability subclass: Skos soil—VIIs

63—Strych-Rizno-Strych, very steep, association

Setting

Position on landscape: Hillsides and mountainsides
Slope range: 15 to 70 percent
Native plants: Trees, shrubs, and grasses
Elevation: 5,600 to 8,000 feet

Composition

Strych soil and similar inclusions: 40 percent
Rizno soil and similar inclusions: 30 percent
Strych, very steep, soil and similar inclusions: 20 percent
Contrasting inclusions: 10 percent

Characteristics of the Strych Soil

Position on landscape: Steep hillsides of structural benches below the Rizno soil and the Strych, very steep, soil
Slope range: 20 to 50 percent
Slope features: Shape—convex; length—10 to 30 feet
Typical profile:
0 to 8 inches—reddish brown extremely bouldery fine sandy loam

8 to 24 inches—yellowish red very stony fine sandy loam
24 to 60 inches—reddish yellow extremely stony fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Water-supplying capacity: Moderately low to moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Rizno Soil

Position on landscape: Structural benches on narrow ledges near areas of Rock outcrop; on south-facing slopes at elevations of more than 7,000 feet
Slope range: 15 to 30 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 5 inches—light reddish brown gravelly fine sandy loam
5 to 19 inches—light reddish brown fine sandy loam
19 inches—sandstone bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Very low or low
Water-supplying capacity: Low or moderately low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Very low
Runoff: Medium
Hazard of water erosion: Severe
Hazard of wind erosion: Slight

Characteristics of the Strych, Very Steep, Soil

Position on landscape: Steep mountainsides on south aspects above 8,000 feet and on all aspects below 8,000 feet
Slope range: 50 to 70 percent
Slope features: Shape—convex; length—2 to 10 feet
Typical profile:
0 to 12 inches—reddish brown very stony fine sandy loam
12 to 16 inches—reddish brown very cobbly fine sandy loam
16 to 60 inches—yellowish red very cobbly fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Water-supplying capacity: Moderately low to moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Contrasting Inclusions

• About 5 percent Rock outcrop occurring as cliffs and ledges
• About 5 percent Badland

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope, a high content of rock fragments, and a limited depth to bedrock

Climate-related factors

Average annual precipitation: 12 to 16 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 80 to 140 days

Woodland

Strych

Woodland site: Upland Steep Stony Loam (Pinyon-Utah Juniper)
Overstory canopy: 20 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 40 percent grasses, 5 percent forbs, and 55 percent shrubs
Important plants: Saline wildrye, Indian ricegrass, birchleaf mountainmahogany, and green Mormon tea
Site index: 75 for pinyon and Utah juniper
Average productivity: Medium
Average yield per acre: 9 cords
Potential for post or Christmas tree production: Fair

Rizno

Woodland site: Upland Shallow Loam (Pinyon-Utah Juniper)
Overstory canopy: 25 to 35 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 10 percent grasses, 10 percent forbs, and 80 percent shrubs
Important plants: Indian ricegrass, Bigelow sagebrush, and Mormon tea
Site index: 40 for pinyon and Utah juniper
Average productivity: Low
Average yield per acre: 4.5 cords
Potential for post or Christmas tree production: Poor

Strych, very steep

Woodland site: Upland Very Steep Stony Loam (Pinyon-Utah Juniper)
Overstory canopy: 25 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 45 percent grasses, 5 percent forbs, and 50 percent shrubs
Important plants: Saline wildrye, Utah serviceberry, Indian ricegrass, and birchleaf mountainmahogany
Site index: 27 for pinyon and Utah juniper
Average productivity: Moderately low
Average yield per acre: 3 cords
Potential for post or Christmas tree production: Poor

General Management Considerations

• The suitability for range seeding is very poor because of the slope, a high content of rock fragments on the surface, and the limited depth to bedrock.
• Trafficability over unsurfaced roads is poor because of the slope, the complex topography, and the high content of boulders and stones.
• The slope limits access by livestock.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• Properly designed road drainage systems that include culverts can help to control erosion.
• To control erosion in disturbed areas, pubescent wheatgrass, crested wheatgrass, alfalfa, small burnet, prostrate kochia, and other adapted native plants can be seeded.

Land Capability Classification

Capability subclass: VIIs, nonirrigated

64—Strych-Skos-Badland complex

Setting

Position on landscape: Steep hillsides
Slope range: 30 to 50 percent
Native plants: Shrubs and grasses
Elevation: 5,400 to 6,200 feet

Composition

Strych soil and similar inclusions: 40 percent
Skos soil and similar inclusions: 35 percent
Badland: 15 percent
Contrasting inclusions: 10 percent

Characteristics of the Strych Soil

Position on landscape: Structural benches on side slopes; intermixed with areas of the Skos soil and Badland
Slope range: 30 to 50 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 3 inches—yellowish red very stony sandy clay loam
3 to 60 inches—reddish yellow very cobbly fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low to moderately high
Water-supplying capacity: Low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Skos Soil

Position on landscape: Structural benches on crests of side slopes adjacent to areas of Badland
Slope range: 30 to 50 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 4 inches—reddish brown channery loam
4 to 14 inches—reddish brown very channery clay loam
14 inches—unweathered shale bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Water-supplying capacity: Very low or low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of Badland

• Badland consists of steep and very steep, barren areas of actively eroding shale bedrock and shale bedrock interbedded with thin layers of sandstone bedrock. The landscape is characterized by angular ridges and nose slopes. Runoff is very rapid.

Contrasting Inclusions

• About 5 percent Rock outcrop occurring as cliffs and ledges
• About 5 percent shallow soils that are on ledges and that support Utah juniper and pinyon

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope, a high content of rock fragments, and the Badland

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 53 degrees F
Frost-free period: 120 to 150 days

Rangeland

Range site:
Strych—Semidesert Stony Loam (Shadscale)
Skos—Semidesert Shallow Sandy Loam (Shadscale)
Composition of the potential plant community:
Strych—45 percent grasses, 10 percent forbs, and 45 percent shrubs
Skos—40 percent grasses, 10 percent forbs, and 50 percent shrubs
Important plants:
Strych—galleta, Indian ricegrass, fourwing saltbush, shadscale, and Mormon tea
Skos—shadscale, Indian ricegrass, galleta, and Bigelow sagebrush
General management considerations:
• The suitability for range seeding is very poor because of the slope, the high content of rock fragments, and the low annual precipitation.
• Trafficability over unsurfaced roads is poor because of the slope, large stones and boulders, and the Badland.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Land Capability Classification

Capability subclass: Strych and Skos soils—VIIs, nonirrigated

65—Strych, warm-Skos, warm-Badland complex

Setting

Position on landscape: Steep hillsides
Slope range: 30 to 50 percent
Native plants: Shrubs and grasses
Elevation: 5,100 to 5,800 feet

Composition

Strych soil and similar inclusions: 40 percent
Skos soil and similar inclusions: 35 percent
Badland: 15 percent
Contrasting inclusions: 10 percent

Characteristics of the Strych Soil

Position on landscape: Structural benches on side slopes; intermixed with areas of the Skos soil and Badland
Slope range: 30 to 50 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 16 inches—yellowish red extremely bouldery sandy loam
16 to 60 inches—yellowish red very cobbly fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Water-supplying capacity: Low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of the Skos Soil

Position on landscape: Structural benches on crests of side slopes adjacent to areas of Badland
Slope range: 30 to 50 percent
Slope features: Shape—convex; length—less than 10 feet
Typical profile:
0 to 3 inches—red channery sandy loam
3 to 19 inches—red very channery sandy clay loam
19 inches—unweathered shale bedrock
Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low or low
Water-supplying capacity: Very low or low
Potential rooting depth: 10 to 20 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Moderate
Hazard of wind erosion: Slight

Characteristics of Badland

• Badland consists of steep and very steep, barren areas of actively eroding shale bedrock and shale bedrock interbedded with thin layers of sandstone bedrock. The landscape is characterized by angular ridges and nose slopes. Runoff is very rapid.

Contrasting Inclusions

• About 5 percent Rock outcrop occurring as cliffs and ledges
• About 5 percent shallow soils that are on ledges and

that support Utah juniper and pinyon

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The slope, a high content of rock fragments, and the Badland

Climate-related factors

Average annual precipitation: 8 to 12 inches
Mean annual air temperature: 49 to 53 degrees F
Frost-free period: 130 to 150 days

Rangeland

Range site:
Strych—Semidesert Stony Loam (Blackbrush)
Skos—Semidesert Shallow Sandy Loam (Blackbrush)
Composition of the potential plant community:
Strych—40 percent grasses, 10 percent forbs, and 50 percent shrubs
Skos—15 percent grasses, 5 percent forbs, and 80 percent shrubs
Important plants:
Strych—blackbrush, galleta, Indian ricegrass, and Mormon tea
Skos—blackbrush, galleta, and Torrey Mormon tea
General management considerations:
• The suitability for range seeding is very poor because of the slope, the high content of rock fragments, and the low annual precipitation.
• Trafficability over unsurfaced roads is poor because of the slope, large stones and boulders, and the Badland.
• The slope limits access by livestock.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Land Capability Classification

Capability subclass: Strych and Skos soils—VIIs, nonirrigated

66—Suwanee silt loam, 1 to 5 percent slopes

Setting

Position on landscape: Stream terraces
Slope features: Shape—plane or convex; length—50 to 200 feet
Native plants: Shrubs and grasses
Elevation: 5,200 to 5,500 feet

Characteristics of the Suwanee Soil

Typical profile:
0 to 7 inches—brown silt loam
7 to 60 inches—stratified brown and light brown fine sandy loam to silty clay loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderately high or high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Medium
Hazard of water erosion: Moderate
Hazard of wind erosion: Moderate
Flooding: Rare

Contrasting Inclusions

• About 5 percent very deep, coarse textured soils that are on flood plains and that support saltcedar and willow
• About 5 percent very deep, fine textured soils that are on stream terraces and that support basin big sagebrush
• About 2 percent Riverwash
• About 2 percent saline soils that are on alluvial fans and that support black greasewood

Major Current Uses

Irrigated cropland, rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The moderate hazard of wind and water erosion and the rare flooding

Climate-related factors

Average annual precipitation: 10 to 12 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 140 to 160 days

Rangeland

Range site: Loamy Bottom (Basin Big Sagebrush)
Composition of the potential plant community: 55 percent grasses, 5 percent forbs, and 40 percent shrubs
Important plants: Western wheatgrass, blue grama, basin big sagebrush, and fourwing saltbush
General management considerations:
• The suitability for range seeding is only fair because of the low annual precipitation.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, intermediate

wheatgrass, pubescent wheatgrass, crested wheatgrass, alfalfa, small burnet, and other native plants can be seeded.

Cropland

General management considerations:
• The principal irrigated crops are alfalfa, small grain, peaches, pears, apples, grapes, and pasture.
• Average annual yields per acre under a high level of management are 6 tons of alfalfa; 90 bushels of oats or barley; 400 bushels of peaches, pears, and apples; 5 tons of grapes; and 7 animal unit months of pasture.
• The main hazard is wind erosion.
Suitable management practices:
• A suitable crop rotation is one that includes 5 or 6 years of alfalfa and 2 or 3 years of small grain.
• Furrow, border, corrugation, sprinkler, and drip irrigation systems are suitable. The method used generally depends on the crop that is grown.
• To prevent overirrigation and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the needs of the crop.
• Leaving crop residue on or near the surface conserves moisture and helps to maintain tilth and control erosion.

Land Capability Classification

Capability subclass: IIe, irrigated; VIIe, nonirrigated

67—Trail fine sandy loam, 0 to 1 percent slopes

Setting

Position on landscape: Flood plains
Slope features: Shape—plane; length—50 to 100 feet
Native plants: Shrubs and grasses
Elevation: 4,200 to 4,400 feet

Characteristics of the Trail Soil

Typical profile:
0 to 8 inches—light yellowish brown fine sandy loam
8 to 26 inches—very pale brown loamy sand
26 to 60 inches—very pale brown loamy fine sand
Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid
Available water capacity: Moderately low or moderate
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Very low
Runoff: Slow
Hazard of water erosion: Slight
Hazard of wind erosion: Severe
Flooding: Rare

Contrasting Inclusions

• About 5 percent Riverwash
• About 5 percent very deep, cobbly soils that are on flood plains and that support Fremont cottonwood and saltcedar
• About 5 percent very deep, poorly drained soils that are on flood plains and that support sedges and wiregrass

Major Current Uses

Irrigated cropland, rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

A rapid intake rate in irrigated areas, the rare flooding, the moderately low available water capacity, a water table below a depth of 42 inches, and the severe hazard of wind erosion

Climate-related factors

Average annual precipitation: 7 to 8 inches
Mean annual air temperature: 54 to 56 degrees F
Frost-free period: 170 to 180 days

Rangeland

Range site: Semiwet Saline Streambank (Fremont Cottonwood)
Composition of the potential plant community: 60 percent grasses, 5 percent forbs, and 35 percent shrubs
Important plants: Inland saltgrass, alkali sacaton, saltcedar, coyote willow, and Fremont cottonwood
General management considerations:
• The suitability for range seeding is very poor because of the low annual precipitation.
Suitable management practices:
• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.

Cropland

General management considerations:
• The principal irrigated crops are alfalfa, small grain, and pasture.
• Average annual yields per acre under a high level of management are 7 tons of alfalfa, 90 bushels of oats or barley, and 7 animal unit months of pasture.
• The main management concerns are the hazard of wind erosion, rapid water intake, the rapid permeability, the water table at a depth of 42 to 60 inches, and the available water capacity.
Suitable management practices:
• A suitable crop rotation is one that includes 5 or 6 years of alfalfa and 2 or 3 years of small grain.
• A sprinkler irrigation system is suitable. Use of this

method permits the even, controlled application of water, lowers the fluctuating water table, and prevents overirrigation and the accumulation of salts on the surface.
• To prevent overirrigation and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the needs of the crop.

Land Capability Classification

Capability subclass: IIs, irrigated; VIIc, nonirrigated

68—Yarts fine sandy loam, 5 to 30 percent slopes

Setting

Position on landscape: Hillsides of structural benches and mesas
Slope features: Shape—convex; length—20 to 40 feet
Native plants: Shrubs and grasses
Elevation: 6,400 to 6,700 feet

Characteristics of the Yarts Soil

Typical profile:
0 to 5 inches—yellowish red fine sandy loam
5 to 60 inches—yellowish red fine sandy loam
Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or moderately high
Water-supplying capacity: Moderate or moderately high
Potential rooting depth: More than 60 inches
Organic matter content in the surface layer: Low
Runoff: Rapid
Hazard of water erosion: Severe
Hazard of wind erosion: Severe

Contrasting Inclusions

• About 5 percent very deep, loamy soils that are on concave slopes and that support Wyoming big sagebrush
• About 5 percent shallow, loamy soils that are on ridges and that support pinyon and Utah juniper

Major Current Uses

Rangeland, recreation, and wildlife habitat

Major Management Factors

Soil-related factors

The severe hazard of water erosion

Climate-related factors

Average annual precipitation: 12 to 14 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 120 to 140 days

Woodland

Woodland site: Upland Dissected Slopes (Pinyon-Utah Juniper)
Overstory canopy: 35 percent, consisting of pinyon and Utah juniper
Composition of the understory vegetation: 15 percent grasses, 10 percent forbs, and 75 percent shrubs
Important plants: Roundleaf buffaloberry, Indian ricegrass, bottlebrush squirreltail, and Mormon tea
Site index: 44 for pinyon and Utah juniper
Average productivity: Moderately low
Average yield per acre: 5 cords
Potential for post or Christmas tree production: Fair

General Management Considerations

• The suitability for range seeding is poor because of the slope and the severe hazard of water erosion.
• Trafficability over unsurfaced roads is poor because of deep gullies.

Suitable Management Practices

• Proper grazing use, a planned grazing system, and properly distributed water developments can maintain or improve the rangeland vegetation.
• To control erosion in disturbed areas, intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, alfalfa, small burnet, prostrate kochia, and other native plants can be seeded.
• Properly designed road drainage systems that include culverts can help to control erosion.

Land Capability Classification

Capability subclass: VIIe, nonirrigated

Prime Farmland

In this section, prime farmland is defined and the soils in the survey area that are considered prime farmland are listed.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, state, and federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, seed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. An adequate moisture supply and a sufficiently long growing season are required. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or woodland or for other purposes. They either are used for food and fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in national forests, national parks, military reservations, and state parks.

Prime farmland soils commonly receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and length of growing season are favorable, and the level of acidity or alkalinity is acceptable. The soils have few, if any, rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not frequently flooded during the growing season. The slope ranges mainly from 0 to 6 percent. The soils that are prime farmland in this survey area meet the following criteria:

1. The soils have a pH between 4.5 and 8.4 in all horizons within a depth of 40 inches.
2. The soils have a rooting depth of more than 40 inches.
3. The electrical conductivity is less than 4 millimhos per centimeter, and the exchangeable sodium percentage is less than 15.
4. The product of K (erodibility factor) x percent slope is less than 2.0.
5. The product of soil erodibility index I x climatic factor C is less than 60.
6. The soils have a temperature regime that is frigid or warmer.

Soils that receive an inadequate amount of rainfall qualify as prime farmland only in areas where this limitation has been overcome by irrigation. The need for irrigation is indicated after all of the map unit names in table 5. Onsite evaluation is needed to determine whether or not a specific area is irrigated.

A recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on lands that are less productive than prime farmland.

The map units in the survey area that meet the requirements for prime farmland are listed in table 5. This list does not constitute a recommendation for a particular land use. The location of each map unit is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units."

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. Also, the system of land capability classification used by the Soil Conservation Service is explained.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed Soil Map Units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

The principal irrigated crops grown in the survey area are alfalfa, small grain, and pasture plants. Grapes, cantaloupes, watermelons, peaches, pears, and apples also are grown. The main management concerns are the hazard of wind erosion, the rapid rate of water intake, and the available water capacity.

To prevent overirrigation and leaching of plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the rate of water intake, and the needs of the crop. Sprinkler, level border, furrow, drip, and corrugation irrigation systems are suitable. The method used generally depends on the crop that is grown. The use of a sprinkler irrigation system permits the even, controlled application of water, lowers the fluctuating water table, and prevents overirrigation and the accumulation of salts on the surface. If a level border irrigation system is used, land leveling may be needed in the steeper areas.

The principal nonirrigated crops are pinto beans and winter wheat. Dryland alfalfa and spring wheat also are grown. Pinto beans can be planted each year, but the annual precipitation is not sufficient for yearly cropping of wheat. The main management concerns in nonirrigated areas are droughtiness and the hazard of wind and water erosion.

The major management needs on the cropland and pastureland in the survey area are a system of crop rotation and measures that control erosion. Planting dryland alfalfa or winter wheat or establishing a permanent cover of grasses helps to control sheet, rill, and gully erosion on the steeper slopes. Leaving crop residue on or near the surface conserves moisture and helps to maintain tilth and control erosion. Summer fallow, reduced or limited tillage, or no-till cropping also

helps to control wind and water erosion and conserves moisture.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are described in the section "Detailed Soil Map Units." In any given year, yields may be higher or lower than those indicated because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the section "Detailed Soil Map Units."

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the map unit descriptions are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit *(5)*. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

The capability classification of each map unit is given in the section "Detailed Soil Map Units."

Rangeland and Woodland Understory

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Table 6 shows, for each soil, the range site or the woodland understory site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. Explanation of the column headings in table 6 follows.

A *site* is a distinctive kind of rangeland or grazeable woodland that produces a characteristic natural plant community that differs from natural plant communities on other sites in kind, amount, and proportion of range plants. The relationship between soils and vegetation was ascertained during this survey; thus, sites generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, salt content, and a seasonal high water table are also important. A woodland site has at least 10 percent canopy cover of trees in the potential natural plant community.

Total production is the amount of vegetation that can be expected to grow annually on a well managed site that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture.

Dry weight is the total annual yield per acre of air-dry vegetation. Yields are adjusted to a common percent of air-dry moisture content. The relationship of green weight to air-dry weight varies according to such factors as exposure, amount of shade, recent rains, and unseasonable dry periods.

Characteristic vegetation—the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil—is listed by common name. Under *composition*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range condition. Range condition is determined by comparing the present plant community with the potential natural plant community on a particular range site. The more closely the existing community resembles the potential community, the better the range condition. Range condition is an ecological rating only. It does not have a specific meaning that pertains to the present plant community in a given use.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimal production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, a range condition somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Recreation

The soils of the survey area are rated in table 7 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 7, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties generally are favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be

offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils are gently sloping and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Table 7 also shows ratings of soils for engineering uses that affect recreational development. These uses are septic tank absorption fields, local roads and streets, and dwellings without basements. The information in this table is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills generally are limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Dwellings without basements are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Construction Materials

Table 8 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index

properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel, or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and depth to the water table is less than 1 foot. These soils may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 8, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the taxonomic unit descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is as much as 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features listed in tables are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 9 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area *(3)*. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each taxonomic unit under "Taxonomic Units and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the "Glossary."

Classification of the soils is determined according to the system adopted by the Unified soil classification system *(2)* and the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 10 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each taxonomic unit under "Taxonomic Units and Their Morphology."

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at ⅓ bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of the soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on

the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, more than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, very fine sand, sand, and organic matter (as much as 4 percent) and on soil structure and permeability. The estimates are modified by the presence of rock fragments. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion.

Erosion factor T is an estimate of the maximum average rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion. Soils are grouped according to the following distinctions:

1. Coarse sands, sands, fine sands, and very fine sands. These soils generally are not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, and sapric soil material. These soils are very highly erodible. Crops can be grown if intensive measures to control wind erosion are used.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control wind erosion are used.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams. These soils are erodible. Crops can be grown if intensive measures to control wind erosion are used.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay. These soils are moderately erodible. Crops can be grown if measures to control wind erosion are used.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material. These soils are slightly erodible. Crops can be grown if measures to control wind erosion are used.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay. These soils are very slightly erodible. Crops can be grown if ordinary measures to control wind erosion are used.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material. These soils are very slightly erodible. Crops can be grown if ordinary measures to control wind erosion are used.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 10, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 11 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or

well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflow from streams, by runoff from adjacent slopes, or by inflow from high tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered to be flooding. Standing water in swamps and marshes or in closed depressional areas is considered to be ponding.

Table 11 gives the estimated frequency of flooding. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable, *rare* that it is unlikely but is possible under unusual weather conditions (the chance of flooding in any year is 0 to 5 percent), *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding in any year is 5 to 50 percent), and *frequent* that it occurs often under normal weather conditions (the chance of flooding in any year is more than 50 percent).

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and level of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

A *cemented pan* is a cemented or indurated subsurface layer at a depth of 5 feet or less. Such a pan causes difficulty in excavation. Pans are classified as thin or thick. A *thin* pan is one that is less than 3 inches thick if continuously indurated or less than 18 inches thick if discontinuous or fractured. Excavations can be made by trenching machines, backhoes, or small rippers. A *thick* pan is one that is more than 3 inches thick if continuously indurated or more than 18 inches thick if it is discontinuous or fractured. Such a pan is so thick or massive that blasting or special equipment is needed in excavation.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(7)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 12 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Orthent (*Orth*, meaning common, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Torriorthents (*Torri*, meaning hot and dry, plus *orthent*, the suborder of the Entisols that has a dry moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Torriorthents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, thickness of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is loamy, mixed (calcareous), mesic, shallow Typic Torriorthents.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the underlying material can differ within a series.

Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical of the unit in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" *(4)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(7)*. Unless otherwise stated, matrix colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the unit.

The map units of each taxonomic unit are described in the section "Detailed Soil Map Units."

Arches Series

The Arches series consists of shallow, well drained, rapidly permeable soils on structural benches. These soils formed in eolian deposits derived from sandstone.

Slopes range from 2 to 15 percent. Elevation is 5,000 to 6,000 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 48 to 54 degrees F.

These soils are mixed, mesic Lithic Torripsamments.

Typical pedon of Arches fine sand, in an area of Arches-Rizno-Mido complex; south of Moki Canyon, about 16 miles east of Halls Crossing, about 50,000 feet north and 1,000 feet west of the northeast corner of sec. 6, T. 40 S., R. 14 E., in an unsectionalized area:

A—0 to 4 inches; reddish yellow (5YR 6/6) fine sand, yellowish red (5YR 5/6) moist; single grain; loose; few fine roots; mildly alkaline (pH 7.8); gradual smooth boundary.

C1—4 to 15 inches; reddish yellow (5YR 6/6) fine sand, yellowish red (5YR 5/6) moist; single grain; loose; few very fine, fine, and medium roots; few fine pores; mildly alkaline (pH 7.8); gradual smooth boundary.

C2—15 to 18 inches; reddish yellow (5YR 6/6) fine sand, yellowish red (5YR 5/6) moist; single grain; loose; few very fine, fine, and medium roots; few fine pores; slight effervescence; disseminated carbonates; moderately alkaline (pH 8.4); abrupt smooth boundary.

R—18 inches; sandstone bedrock.

The depth to bedrock is 10 to 20 inches. The A and C horizons have hue of 2.5YR or 5YR, value of 5 or 6 (4 or 5 moist), and chroma of 5 or 6. They are mildly alkaline or strongly alkaline.

Bankard Family

The Bankard family consists of very deep, well drained, rapidly permeable soils on flood plains. These soils formed in alluvium derived dominantly from sandstone. Slopes range from 0 to 4 percent. Elevation is 4,000 to 5,200 feet. Average annual precipitation is 6 to 9 inches, and mean annual air temperature is 52 to 57 degrees F. The soils are in areas along the major stream channels where additional moisture is provided by runoff or subirrigation.

These soils are sandy, mixed, mesic Ustic Torrifluvents.

Reference pedon of a Bankard family soil, in an area of Bankard family-Sheppard complex; in Red Canyon, about 2 miles south of Chocolate Drop, about 5,000 feet south and 400 feet east of the southeast corner of sec. 2, T. 37 S., R. 14 E., in an unsectionalized area:

A—0 to 6 inches; red (2.5YR 4/6) fine sandy loam, dark red (2.5YR 3/6) moist; weak fine granular structure; soft, very friable; few fine and medium roots; few fine pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

C1—6 to 13 inches; red (2.5YR 4/6) gravelly loamy fine sand, dark red (2.5YR 3/6) moist; massive; soft, very friable; few fine and medium roots; few fine tubular pores; about 20 percent fine gravel; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0); abrupt wavy boundary.

C2—13 to 53 inches; red (2.5YR 5/6) loamy fine sand, red (2.5YR 4/6) moist; single grain; loose; few fine roots; few interstitial pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.2); clear smooth boundary.

C3—53 to 60 inches; red (2.5YR 5/6) fine sandy loam, red (2.5YR 4/6) moist; massive; soft, very friable; few fine tubular pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0).

The particle-size control section has 0 to 25 percent rock fragments, is 2 to 12 percent clay, and consists chiefly of sand, loamy sand, and loamy fine sand. The soils are stratified gravelly loamy fine sand to fine sandy loam. Hue is 2.5YR, 5YR, or 7.5YR, value is 4 or 5 (3 or 4 moist), and chroma is 4 to 6. Reaction is mildly alkaline or moderately alkaline.

Barx Series

The Barx series consists of very deep, well drained, moderately permeable soils on mesas and structural benches. These soils formed in alluvium and eolian material derived dominantly from sandstone. Slopes range from 1 to 10 percent. Elevation is 5,200 to 7,800 feet. Average annual precipitation is 12 to 16 inches, and mean annual air temperature is 46 to 52 degrees F.

These soils are fine-loamy, mixed, mesic Ustollic Haplargids.

Typical pedon of Barx very fine sandy loam, 1 to 4 percent slopes, about 2 miles southeast of the intersection of State Highways 95 and 261, about 1,700 feet south and 1,600 feet west of the northeast corner of sec. 19, T. 37 S., R. 19 E.

A—0 to 3 inches; reddish brown (5YR 5/4) very fine sandy loam, reddish brown (5YR 4/3) moist; weak medium platy structure; soft, friable; common very fine and fine roots; few very fine tubular pores; moderately alkaline (pH 8.0); clear smooth boundary.

Bw—3 to 9 inches; reddish brown (5YR 5/4) fine sandy loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common

very fine and fine and few medium roots; common very fine and fine tubular pores; moderately alkaline (pH 8.0); clear smooth boundary.

Bt1—9 to 15 inches; reddish brown (5YR 5/4) sandy clay loam, reddish brown (5YR 4/4) moist; moderate coarse subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine and few medium roots; common very fine and fine and few medium tubular pores; common moderately thick clay films on faces of peds; moderately alkaline (pH 8.0); clear smooth boundary.

Bt2—15 to 23 inches; reddish yellow (5YR 6/6) sandy clay loam, yellowish red (5YR 4/6) moist; moderate coarse subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine and few medium roots; common very fine and fine and few medium pores; common moderately thick clay films lining pores and on faces of peds; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); abrupt smooth boundary.

Btk—23 to 36 inches; reddish yellow (5YR 6/6) sandy clay loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; common very fine and fine tubular pores; few moderately thick clay films on faces of peds; moderately calcareous; segregated carbonates in filaments; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bk—36 to 47 inches; pink (5YR 7/4) sandy clay loam, yellowish red (5YR 5/6) moist; massive; hard, friable, sticky and plastic; few very fine and fine roots; common very fine and fine tubular pores; strongly calcareous; disseminated carbonates; moderately alkaline (pH 8.6); clear wavy boundary.

C—47 to 55 inches; pink (5YR 7/4) sandy clay loam, yellowish red (5YR 5/6) moist; massive; hard, friable, slightly sticky and slightly plastic; few fine roots; common very fine and fine tubular pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.4); clear wavy boundary.

Ck—55 to 60 inches; pink (5YR 7/4) sandy clay loam, yellowish red (5YR 5/6) moist; massive; hard, friable, slightly sticky and slightly plastic; common fine pores; strongly calcareous; carbonates in veins; strongly alkaline (pH 8.6).

The depth to a calcic horizon is 15 to 32 inches. The depth to bedrock is 60 inches or more. The upper 8 to 23 inches is leached of carbonates.

The A horizon has hue of 5YR or 7.5YR, value of 4 or 5 (3 or 4 moist), and chroma of 3 to 6. It is very fine sandy loam or fine sandy loam. It is mildly alkaline or moderately alkaline.

The Bt horizon has hue of 5YR or 7.5YR, value of 4 or 5 moist, and chroma of 3 to 6. It is mildly alkaline or moderately alkaline. The content of clay is 20 to 35 percent in this horizon.

The Bk horizon has value of 5 to 7 (4 to 6 moist). It is moderately alkaline or strongly alkaline and is strongly calcareous or very strongly calcareous.

Bluechief Series

The Bluechief series consists of moderately deep, well drained, moderately rapidly permeable soils on structural benches. These soils formed in eolian material and alluvium derived dominantly from sandstone. Slopes range from 2 to 6 percent. Elevation is 4,600 to 5,600 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 52 to 55 degrees F.

These soils are coarse-loamy, mixed, mesic Typic Calciorthids.

Typical pedon of Bluechief fine sandy loam, in an area of Bluechief-Limeridge-Nakai complex, 1 to 6 percent slopes; about 6 miles northwest of Mexican Hat, about 1,500 feet north and 500 feet east of the southwest corner of sec. 21, T. 41 S., R. 18 E.

A—0 to 2 inches; yellowish red (5YR 5/8) fine sandy loam, yellowish red (5YR 4/6) moist; weak medium platy structure; soft, very friable; few very fine and fine roots; common very fine and fine pores; about 3 percent gravel; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bw1—2 to 10 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; soft, friable; common very fine and fine roots; common fine tubular pores; about 3 percent gravel; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.2); clear smooth boundary.

Bw2—10 to 15 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; soft, very friable; common very fine and fine roots; common fine tubular pores; about 3 percent gravel; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.2); clear smooth boundary.

Bk1—15 to 19 inches; reddish yellow (5YR 7/6) fine sandy loam, reddish yellow (5YR 6/6) moist; massive; soft, friable, slightly sticky; few very fine roots; common fine tubular pores; about 8 percent gravel, 5 percent cobbles, and 1 percent stones; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.2); clear wavy boundary.

Bk2—19 to 26 inches; pink (5YR 8/4) fine sandy loam, reddish yellow (5YR 7/6) moist; massive; soft, friable, slightly sticky; about 10 percent pebbles and 4 percent cobbles; strongly calcareous; disseminated carbonates; moderately alkaline (pH 8.4); abrupt irregular boundary.
R—26 inches; limestone bedrock.

Limestone or sandstone bedrock is at a depth of 20 to 40 inches. The particle-size control section ranges from 10 to 18 percent clay and has less than 15 percent rock fragments. The depth to secondary carbonate accumulation is 10 to 20 inches.

The A horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 8. It is slightly calcareous or moderately calcareous.

The Bw horizon has hue of 2.5YR or 5YR and value of 4 or 5. It is moderately alkaline or strongly alkaline and is slightly calcareous or moderately calcareous.

The Bk horizon has hue of 2.5YR or 5YR and value of 4 to 7 moist. It is moderately calcareous or strongly calcareous.

Bodot Series

The Bodot series consists of moderately deep, well drained, slowly permeable soils on slumped hillsides. These soils formed in colluvium and material weathered from sandstone and shale. Slopes range from 20 to 50 percent. Elevation is 5,000 to 7,400 feet. Average annual precipitation is 8 to 16 inches, and mean annual air temperature is 46 to 53 degrees F.

These soils are fine, montmorillonitic (calcareous), mesic Ustic Torriorthents.

Typical pedon of Bodot very cobbly loam, in an area of Rizno-Littlenan-Bodot association; near the end of White Mesa, about 1,500 feet east and 100 feet north of the southwest corner of sec. 17, T. 38 S., R. 22 E.

A—0 to 6 inches; light brown (7.5YR 6/4) very cobbly loam, brown (7.5YR 5/4) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine and medium tubular pores; about 1 percent boulders, 3 percent stones, 15 percent cobbles, and 25 percent pebbles; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.
C1—6 to 15 inches; light brownish gray (2.5Y 6/2) clay loam, grayish brown (2.5Y 5/2) moist; massive; hard, firm, slightly sticky and plastic; common very fine, fine, medium, and coarse roots; common fine and few medium tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); gradual wavy boundary.
C2—15 to 22 inches; light gray (5Y 7/1) clay loam, light brownish gray (2.5Y 6/2) moist; massive; very hard, very firm, sticky and plastic; few very fine, fine, and medium roots; few fine tubular pores; common fine gypsum crystals; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); gradual wavy boundary.
C3—22 to 36 inches; light gray (5Y 7/1) clay loam, olive gray (5Y 5/2) moist; massive; very hard, firm, sticky and plastic; few very fine, fine, and medium roots; many fine and medium masses of gypsum; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); gradual wavy boundary.
Cr—36 inches; weathered, gypsiferous shale bedrock.

The depth to weathered shale bedrock is 20 to 40 inches. The content of clay in the particle-size control section is 35 to 60 percent.

The A horizon has hue of 7.5YR or 10YR, value of 4 to 6 (3 to 5 moist), and chroma of 2 to 4. It is very cobbly loam or very stony sandy clay loam. It is noncalcareous or slightly calcareous.

The C horizon has hue of 7.5YR to 5Y, value of 5 to 7 (4 to 7 moist), and chroma of 1 to 4. It is sandy clay loam, clay loam, silty clay loam, silty clay, or clay. It is slightly calcareous or moderately calcareous.

Bookcliff Series

The Bookcliff series consists of deep, well drained, moderately slowly permeable soils on mountainsides and benches. These soils formed in alluvium derived from sandstone and shale. Slopes range from 2 to 30 percent. Elevation is 8,000 to 8,900 feet. Average annual precipitation is 16 to 19 inches, and mean annual air temperature is 41 to 45 degrees F.

These soils are fine-loamy, mixed Typic Argiborolls.

Typical pedon of Bookcliff sandy loam, in an area of Bookcliff-Bookcliff, dry, complex; on Woodenshoe Butte, about 1,500 feet east and 1,000 feet south of the northwest corner of sec. 32, T. 35 S., R. 18 E.

A—0 to 2 inches; reddish brown (5YR 4/3) sandy loam, dark reddish brown (5YR 3/3) moist; weak fine granular structure; soft, very friable; common very fine and fine roots; common fine tubular pores; mildly alkaline (pH 7.4); clear smooth boundary.
Bt1—2 to 8 inches; reddish brown (5YR 4/4) sandy loam, dark reddish brown (5YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine, very fine, and medium roots; common fine tubular pores; common thin clay films

lining pores and on faces of peds; mildly alkaline (pH 7.6); clear smooth boundary.

Bt2—8 to 15 inches; reddish brown (5YR 4/4) loam, dark reddish brown (5YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine tubular pores; common moderately thick clay films lining pores and on faces of peds; about 10 percent fine gravel; mildly alkaline (pH 7.8); clear smooth boundary.

Bt3—15 to 20 inches; reddish brown (5YR 4/4) sandy clay loam, reddish brown (5YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; common fine tubular pores; common thin clay films lining pores and on faces of peds; mildly alkaline (pH 7.8); clear smooth boundary.

Bk1—20 to 33 inches; reddish brown (5YR 5/3) sandy clay loam, reddish brown (5YR 4/3) dry; massive; slightly hard, friable; slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; moderately calcareous; carbonates occurring as common soft fine veins lining pores and root channels; moderately alkaline (pH 8.0); clear smooth boundary.

Bk2—33 to 47 inches; reddish brown (5YR 5/3) sandy clay loam, dark reddish brown (5YR 3/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common fine tubular pores; moderately calcareous; carbonates occurring as many fine and medium soft masses lining pores; moderately alkaline (pH 8.0); abrupt smooth boundary.

R—47 inches; sandstone bedrock.

Sandstone bedrock is at a depth of 40 to 60 inches. The particle-size control section ranges from 18 to 31 percent clay and has less than 10 percent rock fragments. The mollic epipedon is less than 16 inches thick. The thickness of the A and Bt horizons is 16 to 20 inches. Hue is 5YR or 7.5YR.

The A horizon has value of 3 or 4 and chroma of 2 or 3. It is loam or sandy loam.

The Bt horizon has value of 4 or 5 and chroma of 2 to 4. It is loam, sandy clay loam, or clay loam.

The Bk horizon has value of 5 or 6 (3 to 5 moist) and chroma of 3 or 4. It is sandy clay loam, clay loam, or loam. It is mildly alkaline or moderately alkaline and is slightly calcareous or moderately calcareous.

Cahona Series

The Cahona series consists of very deep, well drained, moderately slowly permeable soils on mesas. These soils formed in eolian deposits derived dominantly from sandstone. Slopes range from 1 to 8 percent. Elevation is 5,400 to 7,000 feet. Average annual precipitation is 10 to 15 inches, and mean annual air temperature is 45 to 50 degrees F.

These soils are fine-silty, mixed, mesic Ustollic Haplargids.

Typical pedon of Cahona very fine sandy loam, 1 to 8 percent slopes, about 7 miles southeast of Blanding on Alkali Point, 700 feet north and 500 feet east of the southwest corner of sec. 1, T. 37 S., R. 23 E.

A—0 to 3 inches; reddish brown (5YR 5/4) very fine sandy loam, reddish brown (5YR 4/4) moist; weak fine granular structure; soft, very friable; common fine and very fine and few medium and coarse roots; mildly alkaline (pH 7.6); abrupt smooth boundary.

Bt—3 to 15 inches; yellowish red (5YR 5/6) sandy clay loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; many very fine and fine and few medium and coarse roots; many very fine and fine and few medium pores; many thin clay films lining pores and on faces of peds; mildly alkaline (pH 7.8); clear smooth boundary.

Btk—15 to 27 inches; reddish yellow (5YR 6/6) sandy clay loam, yellowish red (5YR 5/6) moist; strong medium subangular blocky structure; hard, firm, sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common very fine, many fine, and few medium pores; common moderately thick clay films on faces of peds; strongly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1—27 to 37 inches; pink (5YR 8/3) loam, reddish yellow (5YR 7/6) moist; massive; hard, firm, sticky; few fine and very fine roots; common fine and very fine pores; strongly calcareous; disseminated carbonates; moderately alkaline (pH 8.2); gradual smooth boundary.

Bk2—37 to 60 inches; pink (5YR 7/4) loam, reddish yellow (5YR 6/8) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine and common fine and medium pores; strongly calcareous; carbonates in veins and filaments; moderately alkaline (pH 8.2).

The thickness of the solum ranges from 19 to 30 inches.

The A horizon has hue of 5YR or 7.5YR, value of 4 to 6 (3 to 5 moist), and chroma of 2 to 4. It is very fine sandy loam or silt loam.

The Bt horizon has value of 4 to 6 and chroma of 3

to 6. It is silty clay loam or sandy clay loam. The content of clay is 20 to 35 percent. Common thin to moderately thick clay films are on faces of peds. Reaction ranges from neutral to moderately alkaline.

The Bk horizon has hue of 7.5YR to 2.5YR. It commonly is loam, fine sandy loam, very fine sandy loam, or silty clay loam. It is moderately alkaline or strongly alkaline.

Gilco Series

The Gilco series consists of very deep, well drained, moderately permeable soils on stream terraces. These soils formed in alluvium derived from sandstone and shale. Slopes range from 0 to 2 percent. Elevation is 4,300 to 5,000 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 54 to 56 degrees F.

These soils are coarse-loamy, mixed (calcareous), mesic Typic Torrifluvents.

Typical pedon of Gilco silt loam, 0 to 1 percent slopes, about 1.5 miles east of Bluff, 2,400 feet east and 1,700 feet south of the northwest corner of sec. 29, T. 40 S., R. 22 E.

Ap1—0 to 1 inch; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; few fine pores; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.6); abrupt smooth boundary.

Ap2—1 to 11 inches; yellowish brown (10YR 5/4) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; few fine pores; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.6); clear smooth boundary.

C1—11 to 25 inches; light yellowish brown (10YR 6/4) very fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common very fine and few fine pores; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.6); clear smooth boundary.

C2—25 to 45 inches; light yellowish brown (10YR 6/4) fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable; few very fine roots; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.6); clear smooth boundary.

C3—45 to 60 inches; light yellowish brown (10YR 6/4) loamy fine sand, brown (10YR 4/3) moist; few fine faint yellowish brown (10YR 5/6) mottles; single grain; loose; few very fine roots; slightly calcareous; disseminated carbonates; mildly alkaline (pH 7.6).

The A horizon has hue of 10YR or 7.5YR and value of 5 or 6. It is silt loam, silty clay loam, or fine sandy loam.

The C horizon has hue of 10YR or 7.5YR and value of 5 to 7 (4 or 5 moist). It is stratified fine sandy loam, very fine sandy loam, or silt loam. In some pedons it has loamy fine sand below a depth of 40 inches. It is mildly alkaline or moderately alkaline.

Green River Family

The Green River family consists of very deep, moderately well drained to somewhat poorly drained, moderately permeable or moderately rapidly permeable soils on flood plains. These soils formed in alluvium derived dominantly from sandstone and shale. Slopes range from 0 to 3 percent. Elevation is 4,200 to 6,000 feet. Average annual precipitation is 5 to 12 inches, and mean annual air temperature is 49 to 56 degrees F.

These soils are coarse-loamy, mixed (calcareous), mesic Aquic Ustifluvents.

Reference pedon of a Green River family soil, in an area of Green River-Bankard families-Riverwash association, 0 to 4 percent slopes; along the San Juan River, about 1,200 feet east and 2,500 feet north of the southwest corner of sec. 30, T. 40 S., R. 23 E.

A—0 to 3 inches; yellowish red (5YR 5/6) coarse sandy loam, yellowish red (5YR 4/6) moist; weak thick platy structure; soft, very friable; common very fine and fine roots; few fine tubular pores; about 5 percent fine gravel; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

C1—3 to 13 inches; yellowish red (5YR 4/6) coarse sandy loam, yellowish red (5YR 4/6) moist; common fine faint yellowish red (5YR 5/6) mottles; massive; soft, very friable; common very fine and fine roots; few fine tubular pores; about 5 percent fine pebbles; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); abrupt smooth boundary.

C2—13 to 21 inches; light brown (7.5YR 6/4) loam, dark brown (7.5YR 4/2) moist; common fine distinct black (N 2/0) mottles; massive; soft, very friable, sticky; common very fine and fine roots; common fine tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

C3—21 to 35 inches; light brown (7.5YR 6/4) fine sandy loam, dark brown (7.5YR 4/2) moist; massive; slightly hard, friable; common very fine and fine

roots; few fine tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.
C4—35 to 60 inches; light brown (7.5YR 6/4) loam, dark brown (7.5YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; few fine tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0).

The depth to bedrock is more than 60 inches. The particle-size control section is 10 to 18 percent clay. A seasonal water table is at a depth of 21 to 36 inches during the period December through June. The texture is dominantly fine sandy loam, coarse sandy loam, or loam, but the soils are highly stratified with thin layers of sandy clay loam, loamy coarse sand, silty clay loam, or loamy sand. Hue is 5YR or 7.5YR, value is 4 to 6 (3 to 5 moist), and chroma is 2 to 6.

Kiln Series

The Kiln series consists of shallow, well drained, moderately permeable soils on mountainsides and benches. These soils formed in alluvium and residuum derived from sandstone and shale. Slopes range from 2 to 15 percent. Elevation is 8,000 to 8,400 feet. Average annual precipitation is 16 to 19 inches, and mean annual air temperature is 42 to 45 degrees F.

These soils are loamy, mixed Lithic Argiborolls.

Typical pedon of Kiln loam, 2 to 15 percent slopes, about 2 miles northeast of the Heel of Woodenshoe Butte, 2,500 feet west and 500 feet south of the northeast corner of sec. 21, T. 35 S., R. 18 E.

A1—0 to 2 inches; reddish brown (5YR 4/4) loam, dark reddish brown (5YR 3/2) moist; weak thick platy structure; soft, friable, slightly sticky and slightly plastic; few very fine and fine roots; common fine interstitial pores; mildly alkaline (pH 7.4); clear smooth boundary.
A2—2 to 9 inches; reddish brown (7.5YR 4/4) loam, dark reddish brown (7.5YR 3/2) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; common fine and very fine pores; about 5 percent fine gravel; mildly alkaline (pH 7.4); clear smooth boundary.
Bt—9 to 18 inches; red (5YR 4/4) gravelly clay loam, reddish brown (5YR 4/4) moist; strong medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few fine and very fine roots; few fine tubular pores; common thin clay films lining pores and on faces of peds; about 20 percent gravel; mildly alkaline (pH 7.4); abrupt smooth boundary.
R—18 inches; sandstone bedrock.

The depth to bedrock and thickness of the solum are 10 to 20 inches. The particle-size control section has 15 to 35 percent rock fragments and is 28 to 35 percent clay.

The A horizon has value of 3 or 4 (2 or 3 moist) and chroma of 2 to 4. It is loam, clay loam, or gravelly fine sandy loam. The B horizon has value of 3 to 5 dry and moist and chroma of 3 to 4.

Limeridge Series

The Limeridge series consists of shallow, well drained, moderately permeable soils on structural benches and cuestas. These soils are shallow to a petrocalcic horizon. They formed in eolian material and residuum derived dominantly from sandstone and limestone. Slopes range from 2 to 12 percent. Elevation is 4,400 to 5,600 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 54 to 57 degrees F.

These soils are loamy, mixed, mesic, shallow Typic Paleorthids.

Typical pedon of Limeridge gravelly very fine sandy loam, 4 to 12 percent slopes, about 1.2 miles southeast of Sugarloaf, about 2,000 feet south and 700 feet west of the northeast corner of sec. 26, T. 41 S., R. 19 E.

A—0 to 1 inch; light reddish brown (5YR 6/4) gravelly very fine sandy loam, reddish brown (5YR 4/4) moist; weak thin platy structure parting to single grain; soft, very friable; few very fine and fine roots; about 30 percent gravel; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.2); abrupt smooth boundary.
Bw1—1 to 3 inches; reddish yellow (5YR 6/6) fine sandy loam, yellowish red (5YR 4/6) moist; weak medium platy structure; slightly hard, friable; few very fine and fine roots; few fine tubular pores; about 10 percent gravel; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.4); clear smooth boundary.
Bw2—3 to 8 inches; reddish yellow (5YR 6/6) gravelly fine sandy loam, yellowish red (5YR 4/6) moist; weak medium subangular blocky structure; slightly hard, friable, slightly plastic; common fine and very fine and few medium roots; common very fine and fine tubular pores; about 20 percent pebbles and 5 percent cobbles; strongly calcareous; disseminated carbonates; strongly alkaline (pH 8.7); clear smooth boundary.
Bk1—8 to 11 inches; pink (5YR 7/4) gravelly sandy clay

loam, reddish brown (5YR 5/4) moist; massive; hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and fine tubular pores; about 25 percent gravel; very strongly calcareous; carbonates in common medium soft masses and common large rounded concretions; strongly alkaline (pH 8.6); clear smooth boundary.

Bk2—11 to 16 inches; pink (5YR 7/4) gravelly fine sandy loam, reddish brown (5YR 5/4) moist; massive; hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; few very fine and fine tubular pores; about 20 percent gravel; very strongly calcareous; carbonates are in many medium soft masses and common large rounded concretions; strongly alkaline (pH 8.8); abrupt smooth boundary.

Bkm—16 to 22 inches; strongly cemented hardpan; abrupt smooth boundary.

R—22 inches; limestone bedrock.

The depth to a cemented hardpan is 10 to 20 inches. The depth to limestone bedrock is 20 to 40 inches. The particle-size control section is 18 to 30 percent clay and has 15 to 35 percent rock fragments. Carbonate equivalent is 15 to 40 percent above the hardpan.

The A horizon has hue of 2.5YR or 5YR, value of 5 or 6 (4 or 5 moist), and chroma of 4 to 6. It is gravelly very fine sandy loam, fine sandy loam, or loamy fine sand.

The Bw horizon has hue of 2.5YR or 5YR, value of 5 or 6 (4 or 5 moist), and chroma of 4 to 6. It is moderately alkaline or strongly alkaline.

The Bk horizon has hue of 2.5YR or 5YR, value of 7 or 8 (5 to 7 moist), and chroma of 4 to 6. It is gravelly sandy clay loam or gravelly fine sandy loam.

Littlenan Series

The Littlenan series consists of moderately deep, well drained, very slowly permeable soils on structural benches. These soils formed in alluvium and residuum derived dominantly from shale. Slopes range from 3 to 20 percent. Elevation is 4,600 to 6,000 feet. Average annual precipitation is 7 to 12 inches, and mean annual air temperature is 49 to 54 degrees F.

These soils are fine, montmorillonitic, mesic Ustertic Camborthids.

Typical pedon of Littlenan gravelly loam, in an area of Littlenan-Ruinpoint-Rizno association, 1 to 20 percent slopes; about 1.5 miles west of Little Nancy Canyon, about 700 feet north and 2,200 feet east of the southwest corner of sec. 32, T. 37 S., R. 25 E.

A—0 to 3 inches; light brown (7.5YR 6/4) gravelly loam, brown (7.5YR 5/4) moist; weak fine granular structure; soft, friable, sticky and plastic; common fine and very fine roots; common fine interstitial pores; about 5 percent cobbles and 15 percent pebbles; moderately alkaline (pH 8.2); moderately calcareous; disseminated carbonates; clear smooth boundary.

Bw—3 to 14 inches; light brown (7.5YR 6/4) silty clay loam, brown (7.5YR 5/4) moist; strong coarse prismatic structure parting to strong medium subangular blocky; hard, very firm, sticky and plastic; common fine and very fine roots; few fine tubular pores; 10 percent gravel; strongly alkaline (pH 8.6); strongly calcareous; disseminated carbonates; clear smooth boundary.

By—14 to 29 inches; light brown (7.5YR 6/4) silty clay, light brown (7.5YR 6/4) moist; massive; hard, firm, sticky and plastic; few fine roots; moderately alkaline (pH 8.2); strongly calcareous; carbonates and gypsum in common soft veins; clear smooth boundary.

Cr—29 inches; weathered shale bedrock.

The particle-size control section has 0 to 10 percent rock fragments, mainly pebbles and cobbles, and is 35 to 45 percent clay. The soils have cracks that extend to the surface during the period June through November. The depth to weathered shale bedrock is 20 to 40 inches.

The A horizon has hue of 5YR or 7.5YR, value of 5 or 6 (4 or 5 moist), and chroma of 4 to 6. It is clay loam, gravelly loam, sandy clay loam, or silt loam. It is slightly calcareous or moderately calcareous.

The B horizon has hue of 5YR or 7.5YR, value of 5 to 7 (4 to 6 moist), and chroma of 4 to 6. It is silty clay loam, clay, or silty clay. It is mildly alkaline or strongly alkaline and is moderately calcareous or strongly calcareous. It has common soft masses of gypsum in the lower part.

Mido Series

The Mido series consists of very deep, excessively drained, rapidly permeable soils on structural benches, alluvial fans, and mesas. These soils formed in eolian material derived from sandstone. Slopes range from 2 to 15 percent. Elevation is 5,000 to 6,500 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 49 to 54 degrees F.

These soils are mixed, mesic Ustic Torripsamments.

Typical pedon of Mido loamy fine sand, in an area of Rizno-Mido complex; above Clay Hills Divide, about 2,700 feet north and 3,000 feet west of the northeast

corner of sec. 1, T. 39 S., R. 14 E., in an unsectionalized area:

C1—0 to 10 inches; red (2.5YR 5/6) loamy fine sand, red (2.5YR 4/6) moist; single grain; loose; few very fine and fine roots; few very fine pores; moderately alkaline (pH 8.0); clear smooth boundary.
C2—10 to 60 inches; red (2.5YR 5/6) loamy fine sand, red (2.5YR 4/6) moist; single grain; loose; few very fine roots; few very fine pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0).

The depth to bedrock is more than 60 inches. Hue is 5YR or 2.5YR, value is 5 or 6 (4 or 5 moist), and chroma is 4 to 8. The texture is loamy fine sand or loamy sand.

Milok Series

The Milok series consists of very deep, well drained, moderately rapidly permeable soils on structural benches, mesas, and fan terraces. These soils formed in eolian material and alluvium derived from sandstone. Slopes range from 1 to 8 percent. Elevation is 4,400 to 6,600 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 49 to 52 degrees F.

These soils are coarse-loamy, mixed, mesic Ustollic Calciorthids.

Typical pedon of Milok fine sandy loam, 1 to 6 percent slopes, in Fortknocker Canyon, about 6,000 feet north and 1,000 feet east of the northwest corner of sec. 36, T. 34 S., R. 153 E., in an unsectionalized area:

A—0 to 2 inches; reddish brown (5YR 5/4) fine sandy loam, reddish brown (5YR 4/4) moist; weak medium granular structure; soft, very friable; few very fine and fine roots; few very fine tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.
Bw—2 to 8 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 4/6) moist; weak medium subangular blocky structure; slightly hard, friable; common very fine and fine and few medium roots; common very fine and fine tubular pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.2); clear smooth boundary.
Bk1—8 to 18 inches; pink (5YR 7/3) fine sandy loam, yellowish red (5YR 4/6) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and fine tubular pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.2); clear smooth boundary.
Bk2—18 to 37 inches; pink (5YR 7/3) fine sandy loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; strongly calcareous; segregated carbonates in veins; moderately alkaline (pH 8.4); clear smooth boundary.
Bk3—37 to 60 inches; pink (5YR 7/3) fine sandy loam, yellowish red (5YR 4/6) moist; massive; soft, very friable; few very fine and fine roots; moderately calcareous; segregated carbonates in soft masses; moderately alkaline (pH 8.2).

The depth to bedrock is 60 inches or more. Depth to the top of the calcic horizon is 8 to 20 inches.

The A horizon has hue of 5YR, value of 5 or 6 (4 or 5 moist), and chroma of 4 to 6. It is slightly calcareous or moderately calcareous.

The Bw horizon has hue of 5YR or 7.5YR, value of 5 or 6 (4 or 5 moist), and chroma of 6 to 8. The Bk horizon has hue of 5YR or 7.5YR, value of 6 or 7 (4 or 5 moist), and chroma of 3 to 8. It is fine sandy loam or sandy loam. It is moderately alkaline or strongly alkaline and is moderately calcareous or strongly calcareous.

Mivida Series

The Mivida series consists of very deep, well drained, moderately rapidly permeable soils on structural benches and alluvial fans. These soils formed in eolian material derived from sandstone. Slopes range from 1 to 6 percent. Elevation is 4,400 to 6,000 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 48 to 51 degrees F.

These soils are coarse-loamy, mixed, mesic Ustollic Calciorthids.

Typical pedon of Mivida fine sandy loam, in an area of Mivida-Pastern-Rock outcrop complex, 1 to 8 percent slopes; along the Mormon Trail, about 2,000 feet east and 3,500 feet north of the northwest corner of sec. 32, T. 39 S., R. 20 E., in an unsectionalized area:

A—0 to 7 inches; reddish brown (5YR 5/4) fine sandy loam, reddish brown (5YR 4/4) moist; weak thin platy structure; soft, very friable; common very fine and fine and few medium roots; few very fine and fine tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); abrupt smooth boundary.
Bw1—7 to 16 inches; reddish yellow (5YR 6/6) fine sandy loam, yellowish red (5YR 4/6) moist; weak medium subangular blocky structure; slightly hard,

very friable; common very fine and fine and few medium roots; few fine tubular pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

Bw2—16 to 22 inches; reddish yellow (5YR 6/6) fine sandy loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; hard, friable; few very fine and fine roots; common very fine and few fine pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.2); abrupt wavy boundary.

Bk1—22 to 52 inches; pink (5YR 8/3) fine sandy loam, yellowish red (5YR 4/6) moist; massive; hard, very friable; few very fine roots; strongly calcareous; segregated carbonates in common medium soft seams and veins; strongly alkaline (pH 8.6); clear wavy boundary.

Bk2—52 to 60 inches; pink (5YR 8/3) fine sandy loam, yellowish red (5YR 4/6) moist; massive; hard, very friable; strongly calcareous; segregated carbonates in seams; strongly alkaline (pH 8.6).

The depth to bedrock is 60 inches or more. Depth to the top of the calcic horizon is 20 to 30 inches.

The A horizon has value of 4 or 5 dry and moist and chroma of 4 to 6. The Bw horizon has value of 5 or 6 (4 or 5 moist) and chroma of 4 to 6. The Bk horizon has value of 5 to 8 (4 to 6 moist) and chroma of 3 to 6. It is moderately alkaline or strongly alkaline and is moderately calcareous or strongly calcareous.

Moenkopie Series

The Moenkopie series consists of very shallow and shallow, well drained, moderately rapidly permeable soils on hillsides, structural benches, and hogbacks. These soils formed in residuum derived dominantly from sandstone and shale. Slopes range from 2 to 20 percent. Elevation is 3,700 to 5,600 feet. Average annual precipitation is 5 to 8 inches, and mean annual air temperature is 54 to 59 degrees F.

These soils are loamy, mixed (calcareous), mesic Lithic Torriorthents.

Typical pedon of Moenkopie very gravelly fine sandy loam, in an area of Moenkopie-Rock outcrop complex; on Lime Bench, about 2,500 feet north and 100 feet west of the southeast corner of sec. 10, T. 41 S., R. 19 E.

A—0 to 2 inches; red (2.5YR 5/6) very gravelly fine sandy loam, dark red (2.5YR 3/6) moist; weak thin platy structure; slightly hard, friable; few very fine roots; common very fine and fine interstitial pores; about 40 percent gravel; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.2); abrupt smooth boundary.

C—2 to 6 inches; red (2.5YR 5/6) sandy loam, dark red (2.5YR 3/6) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky; few very fine and fine roots; few fine and medium tubular pores; about 10 percent gravel; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.4); abrupt smooth boundary.

R—6 inches; sandstone bedrock.

The depth to bedrock is 5 to 20 inches. The texture is channery sandy loam, fine sandy loam, or sandy loam. Hue is 2.5YR or 5YR, value is 4 or 5 (3 or 4 moist), and chroma is 4 to 6. The soils are slightly calcareous or moderately calcareous and are mildly alkaline to strongly alkaline.

Moffat Series

The Moffat series consists of very deep, well drained, moderately rapidly permeable soils on structural benches. These soils formed in eolian material derived dominantly from sandstone. Slopes range from 3 to 12 percent. Elevation is 4,400 to 4,900 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 50 to 54 degrees F.

These soils are coarse-loamy, mixed, mesic Typic Calciorthids.

Typical pedon of Moffat fine sandy loam, in an area of Nakai-Moffat-Sheppard association; on Tank Bench, about 2,000 feet west and 800 feet north of the southeast corner of sec. 3, T. 40 S., R. 21 E.

A—0 to 3 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 4/6) moist; weak thin platy structure parting to weak fine subangular blocky; soft, very friable; few fine roots; common interstitial pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1—3 to 12 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 5/6) moist; moderate medium subangular blocky structure; hard, firm; common very fine, fine, and medium roots; common fine and medium tubular pores; strongly calcareous; carbonates occurring as many fine and medium soft masses; moderately alkaline (pH 8.0); clear wavy boundary.

Bk2—12 to 18 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 5/6) moist; massive; slightly hard, firm; common fine and medium roots; common fine tubular pores; strongly calcareous; carbonates occurring as common

medium soft masses; moderately alkaline (pH 8.2); gradual wavy boundary.

Bkb1—18 to 27 inches; reddish yellow (5YR 6/6) fine sandy loam, yellowish red (5YR 5/6) moist; massive; slightly hard, friable; common fine and medium roots; common fine tubular pores; moderately calcareous; carbonates occurring as few fine soft masses; moderately alkaline (pH 8.2); clear wavy boundary.

Bkb2—27 to 60 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 5/6) moist; massive; slightly hard, friable; common fine and medium roots; common fine tubular pores; moderately calcareous; carbonates occurring as common medium and large soft masses; moderately alkaline (pH 8.2).

The depth to bedrock is 60 inches or more. Depth to the top of the calcic horizon is less than 15 inches. The particle-size control section is 7 to 18 percent clay.

The A horizon has hue of 5YR, value of 4 or 5, and chroma of 4 to 6. It is loamy fine sand or fine sandy loam. It ranges from noncalcareous to moderately calcareous.

The Bk horizon has hue of 5YR, value of 5 to 7 (4 to 6 moist), and chroma of 4 to 8. It is moderately alkaline or strongly alkaline. It is moderately calcareous or strongly calcareous.

Myton Family

The Myton family consists of deep and very deep, well drained, moderately rapidly permeable soils on hillsides below canyon escarpments. These soils formed in colluvium derived from sandstone and shale. Slopes range from 30 to 70 percent. Elevation is 3,700 to 6,400 feet. Average annual precipitation is 5 to 10 inches, and mean annual air temperature is 50 to 56 degrees F.

These soils are loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents.

Reference pedon of a Myton family soil, in an area of Myton family-Skos-Rock outcrop association; in Blue Notch Canyon, about 1,700 feet west and 1,000 feet south of the southwest corner of sec. 32, T. 34 S., R. 15 E., in an unsectionalized area:

C1—0 to 4 inches; light red (2.5YR 6/6) extremely bouldery loam, red (2.5YR 4/6) moist; massive; slightly hard, firm; few fine and very fine roots; few fine tubular pores; about 20 percent boulders, 30 percent stones, 20 percent cobbles, and 15 percent pebbles; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0); gradual wavy boundary.

C2—4 to 90 inches; light red (2.5YR 6/6) very cobbly sandy loam, red (2.5YR 4/6) moist; massive; slightly hard, firm; few fine tubular pores; about 2 percent boulders, 10 percent stones, and 40 percent cobbles; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0).

The depth to bedrock ranges from 40 to more than 60 inches. The content of rock fragments ranges from 35 to 60 percent. The fragments consist of boulders, stones, cobbles, and pebbles derived from sandstone. The texture is very cobbly sandy loam, very stony sandy loam, or very cobbly sandy loam. Hue is 2.5YR or 5YR, value is 5 or 6 (4 or 5 moist), and chroma is 4 to 8. The soils are moderately alkaline or strongly alkaline and are slightly calcareous or moderately calcareous.

Nakai Series

The Nakai series consists of well drained, moderately rapidly permeable soils on structural benches and fan terraces. These soils are deep or very deep to a petrocalcic horizon. They formed in eolian material and alluvium derived dominantly from sandstone. Slopes range from 1 to 6 percent. Elevation is 3,700 to 5,600 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 50 to 54 degrees F.

These soils are coarse-loamy, mixed, mesic Typic Calciorthids.

Typical pedon of Nakai fine sandy loam, 1 to 6 percent slopes, on Raplee Ridge, about 2,000 feet west and 500 feet north of the southeast corner of sec. 24, T. 41 S., R. 19 E.

A—0 to 2 inches; reddish yellow (5YR 6/6) fine sandy loam, yellowish red (5YR 4/6) moist; weak granular structure; loose, very friable; few fine and medium roots; about 5 percent gravel; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

Bw1—2 to 9 inches; reddish yellow (5YR 6/6) fine sandy loam, yellowish red (5YR 4/6) moist; weak medium subangular blocky structure; slightly hard, very friable; few fine and medium roots; few fine and common medium tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.4); clear smooth boundary.

Bw2—9 to 21 inches; reddish yellow (5YR 6/6) fine sandy loam, yellowish red (5YR 4/6) moist; weak medium subangular blocky structure; slightly hard, very friable; common very fine and fine and few medium roots; few fine and common medium tubular pores; moderately calcareous; disseminated

carbonates; moderately alkaline (pH 8.4); clear smooth boundary.
Bk1—21 to 28 inches; reddish yellow (5YR 6/6) fine sandy loam, yellowish red (5YR 5/6) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky; few very fine and fine roots; few very fine, common fine, and few medium tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.2); clear smooth boundary.
Bk2—28 to 34 inches; pink (5YR 7/4) fine sandy loam, yellowish red (5YR 5/6) moist; strong medium subangular blocky structure; hard, friable, slightly sticky; few very fine and fine roots; few very fine, common fine, and few medium tubular pores; strongly calcareous; segregated carbonates in common soft fine veins; strongly alkaline (pH 9.0); clear smooth boundary.
Bk3—34 to 44 inches; reddish yellow (5YR 7/6) fine sandy loam, yellowish red (5YR 5/6) moist; massive; hard, friable, slightly sticky; few very fine and fine roots; few very fine and fine pores; strongly calcareous; segregated carbonates in common soft fine veins; strongly alkaline (pH 9.0); clear smooth boundary.
Bkm—44 to 55 inches; cemented hardpan.
R—55 inches; limestone bedrock.

Where this soil occurs over limestone, the petrocalcic horizon commonly occurs directly above the limestone. Depth to the petrocalcic horizon and the depth to bedrock range from 40 to more than 60 inches. Depth to the top of the calcic horizon is 20 to 40 inches. The particle-size control section is 8 to 18 percent clay.

The A horizon has hue of 5YR, value of 5 or 6 (4 or 5 moist), and chroma of 4 to 6. It is fine sandy loam or loamy fine sand.

The Bw horizon has hue of 2.5YR or 5YR, value of 5 or 6 (4 or 5 moist), and chroma of 6. It is moderately alkaline or strongly alkaline and is slightly calcareous or moderately calcareous.

The Bk horizon has hue of 2.5YR or 5YR, value of 6 or 7 (4 or 5 moist), and chroma of 4 to 6. It is fine sandy loam or sandy loam. It ranges from moderately alkaline to very strongly alkaline.

Oljeto Family

The Oljeto family consists of very deep, somewhat excessively drained, rapidly permeable soils on structural benches and stream terraces. These soils formed in alluvium from sedimentary rocks. Slopes range from 10 to 40 percent. Elevation is 4,400 to 4,500 feet. Average annual precipitation is 7 to 8 inches, and mean annual air temperature is 54 to 56 degrees F.

These soils are sandy-skeletal, mixed, mesic Typic Calciorthids.

Reference pedon of Oljeto family, 10 to 40 percent slopes, about 4 miles southwest of Bluff, 600 feet west and 2,300 feet north of the southeast corner of sec. 32, T. 40 S., R. 21 E.

A—0 to 5 inches; reddish yellow (5YR 6/6) very cobbly fine sandy loam, yellowish red (5YR 5/6) moist; weak medium subangular blocky structure; soft, very friable; many very fine roots; few fine pores; about 20 percent pebbles and 15 percent cobbles; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.8); clear smooth boundary.
2Bk1—5 to 18 inches; light yellowish brown (10YR 6/4) extremely cobbly loamy fine sand, dark yellowish brown (10YR 4/4) moist; single grain; loose; many very fine and few fine roots; about 35 percent pebbles and 30 percent cobbles; strongly calcareous; carbonates coating the bottom of rock fragments; mildly alkaline (pH 7.8); gradual smooth boundary.
2Bk2—18 to 30 inches; very pale brown (10YR 7/3) extremely cobbly loamy fine sand, yellowish brown (10YR 5/4) moist; single grain; loose; common very fine roots; about 40 percent pebbles and 25 percent cobbles; strongly calcareous; carbonates coating the bottom of rock fragments; mildly alkaline (pH 7.8); gradual smooth boundary.
2Bk3—30 to 60 inches; very pale brown (10YR 7/4) extremely cobbly sand, yellowish brown (10YR 5/4) moist; single grain; loose; few very fine roots; about 30 percent pebbles and 30 percent cobbles; strongly calcareous; carbonates coating the bottom of rock fragments; mildly alkaline (pH 7.6).

Hue is 10YR to 5YR. The particle-size control section has 60 to 65 percent rock fragments, is 0 to 5 percent clay, and consists chiefly of extremely cobbly loamy fine sand or extremely cobbly sand.

Pastern Series

The Pastern series consists of well drained, moderately permeable soils on structural benches. These soils are very shallow and shallow to a petrocalcic horizon. They formed in eolian deposits and alluvium derived from sandstone and limestone. Slopes range from 3 to 8 percent. Elevation is 4,400 to 5,600 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 49 to 53 degrees F.

These soils are loamy, mixed, mesic, shallow Ustollic Paleorthids.

Typical pedon of Pastern fine sandy loam, in an area of Mivida-Pastern-Rock outcrop complex, 1 to 8 percent

slopes; near Road Canyon, about 1,000 feet north and 500 feet east of the southeast corner of sec. 27, T. 39 S., R. 20 E., in an unsectionalized area:

A—0 to 2 inches; reddish brown (5YR 5/4) fine sandy loam, reddish brown (5YR 4/4) moist; weak thin platy structure; soft, very friable; few very fine, fine, and medium roots; few very fine and fine pores; about 10 percent gravel; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.
Bw—2 to 7 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 4/6) moist; massive; soft, very friable; common very fine, fine, and medium and few coarse roots; common fine tubular pores; about 7 percent gravel; moderately calcareous; disseminated carbonates; strongly alkaline (pH 8.6); clear smooth boundary.
Bk—7 to 13 inches; pink (5YR 7/4) gravelly fine sandy loam, reddish yellow (5YR 6/6) moist; massive; very hard, firm, slightly sticky; very few fine and very fine roots; few fine pores; about 25 percent gravel-sized cemented nodules; strongly calcareous; moderately alkaline (pH 8.2); clear wavy boundary.
Bkm—13 to 17 inches; carbonate-cemented hardpan.

Depth to the cemented hardpan is 7 to 20 inches. The particle-size control section is 10 to 18 percent clay and has 5 to 35 percent hardpan rock fragments.

The A horizon has value of 5 or 6 (4 or 5 moist). It is moderately alkaline or strongly alkaline.

The Bk horizon has hue of 2.5YR or 5YR, value of 6 or 7 (4 to 6 moist), and chroma of 4 to 6. It is fine sandy loam or gravelly fine sandy loam.

Piute Series

The Piute series consists of very shallow, well drained, moderately rapidly permeable soils on structural benches and mesas. These soils formed in eolian material derived from sandstone. Slopes range from 3 to 30 percent. Elevation is 3,700 to 6,000 feet. Average annual precipitation is 5 to 12 inches, and mean annual air temperature is 49 to 56 degrees F.

These soils are sandy, mixed, mesic Lithic Torriorthents.

Typical pedon of Piute loamy fine sand, in an area of Piute-Sheppard-Rock outcrop association; about 8 miles southeast of Hall Crossing, 3,000 feet west and 2,000 feet north of the southwest corner of sec. 2, T. 39 S., R. 12 E., in an unsectionalized area:

A—0 to 5 inches; reddish yellow (5YR 6/8) loamy fine sand, yellowish red (5YR 5/6) moist; single grain; loose; few very fine roots; few fine interstitial pores; mildly alkaline (pH 7.6); clear wavy boundary.
C—5 to 9 inches; reddish yellow (5YR 6/6) loamy fine sand, yellowish red (5YR 4/6) moist; single grain; loose; few very fine and fine roots; mildly alkaline (pH 7.8); abrupt wavy boundary.
R—9 inches; hard sandstone bedrock.

The depth to bedrock is 5 to 10 inches. The texture is loamy fine sand or loamy sand. Hue is 2.5YR or 5YR, value is 5 or 6 (4 or 5 moist), and chroma is 4 to 8. The soils are mildly alkaline or moderately alkaline.

Recapture Series

The Recapture series consists of very deep, well drained, moderately permeable soils on stream terraces and on alluvial fans. These soils formed in alluvium derived from sandstone and shale. Slopes range from 0 to 8 percent. Elevation is 4,300 to 5,200 feet. Average annual precipitation is 5 to 8 inches, and mean annual air temperature is 52 to 56 degrees F.

These soils are fine-loamy, mixed, mesic Typic Natrargids.

Typical pedon of Recapture fine sandy loam, in an area of Recapture-Redbank family-Bankard family association, 0 to 8 percent slopes; in Butler Wash, about 2,500 feet south and 1,000 feet west of the northeast corner of sec. 8, T. 39 S., R. 21 E.

E1—0 to 2 inches; light brown (7.5YR 6/4) fine sandy loam, strong brown (7.5YR 4/6) moist; weak thin platy structure; soft, very friable; common very fine and fine roots; common fine interstitial pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.2); clear smooth boundary.
E2—2 to 10 inches; light brown (7.5YR 6/4) fine sandy loam, brown (7.5YR 4/4) moist; massive; soft, very friable; common very fine and fine roots; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.4); abrupt smooth boundary.
Btn1—10 to 16 inches; light reddish brown (5YR 6/4) fine sandy loam, reddish brown (5YR 5/4) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common fine and very fine roots; few fine tubular pores; few thin patchy clay films lining pores; moderately calcareous; disseminated carbonates; strongly alkaline (pH 8.6); abrupt smooth boundary.
Btn2—16 to 28 inches; light reddish brown (5YR 6/3) loam, reddish brown (5YR 4/4) moist; moderate coarse prismatic structure; very hard, firm, sticky and slightly plastic; few very fine and fine roots; few fine tubular pores; common thin clay films lining pores and on faces of peds; moderately calcareous;

disseminated carbonates in soft fine veins; strongly alkaline (pH 8.8); clear smooth boundary.

Btn3—28 to 42 inches; reddish brown (5YR 5/3) loam, reddish brown (5YR 4/4) moist; massive; very hard, firm, sticky and plastic; few very fine and fine roots; few fine pores; few thin patchy clay films lining pores; moderately calcareous; disseminated carbonates; strongly alkaline (pH 8.8); clear smooth boundary.

C—42 to 60 inches; light reddish brown (5YR 6/4) silt loam, reddish brown (5YR 4/4) moist; massive; hard, friable, sticky and slightly plastic; few very fine and fine roots; moderately calcareous; disseminated carbonates; strongly alkaline (pH 8.8).

The depth to bedrock is more than 60 inches. The content of clay in the particle-size control section ranges from 18 to 30 percent. The sodium adsorption ratio in the particle-size control section is more than 13.

The E horizon has value of 5 or 6 (4 or 5 moist) and chroma of 4 to 6. It is fine sandy loam or loamy fine sand. It is moderately alkaline or strongly alkaline.

The Btn horizon has hue of 5YR or 7.5YR, value of 5 or 6 (4 or 5 moist), and chroma of 3 to 6. It is clay loam, sandy clay loam, loam, or fine sandy loam. It is strongly alkaline or very strongly alkaline and is moderately calcareous or strongly calcareous.

The C horizon has hue of 5YR or 7.5YR, value of 5 or 6 (4 or 5 moist), and chroma of 4 to 6. It is very fine sandy loam, silt loam, gravelly sandy clay loam, fine sandy loam, or clay loam. It is strongly alkaline or very strongly alkaline and is moderately calcareous or strongly calcareous.

Redbank Family

The Redbank family consists of very deep, well drained, moderately rapidly permeable soils on flood plains and stream terraces. These soils formed in alluvium derived dominantly from sandstone and shale. Slopes range from 0 to 4 percent. Elevation is 4,500 to 5,500 feet. Average annual precipitation is 7 to 12 inches, and mean annual air temperature is 49 to 56 degrees F.

These soils are coarse-loamy, mixed (calcareous), mesic Ustic Torrifluvents.

Reference pedon of a Redbank family soil, in an area of Recapture-Redbank family-Bankard family association, 0 to 8 percent slopes; in Butler Wash, about 2,300 feet north and 2,300 feet west of the southeast corner of sec. 20, T. 39 S., R. 21 E.

A—0 to 3 inches; strong brown (7.5YR 5/6) fine sandy loam, brown (7.5YR 5/4) moist; weak thin platy structure; soft, very friable; common very fine and fine roots; common fine tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear wavy boundary.

C1—3 to 10 inches; brown (7.5YR 5/4) fine sandy loam, strong brown (7.5YR 4/6) moist; massive; soft, very friable; common very fine, fine, and medium roots; common fine tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear wavy boundary.

C2—10 to 19 inches; brown (7.5YR 5/4) fine sandy loam, strong brown (7.5YR 4/6) moist; massive; soft, very friable; common fine and very fine roots; common fine tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.2); clear wavy boundary.

C3—19 to 39 inches; brown (7.5YR 5/4) fine sandy loam, strong brown (7.5YR 4/6) moist; massive; soft, friable; common fine and very fine roots; common fine tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.2); clear wavy boundary.

C4—39 to 60 inches; reddish yellow (7.5YR 6/6) sandy loam, strong brown (7.5YR 5/6) moist; massive; slightly hard, firm; common fine and very fine roots; common fine tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.2).

The depth to bedrock is more than 60 inches. The particle-size control section ranges from 8 to 18 percent clay. The texture is dominantly fine sandy loam, sandy loam, or loam, but the soils have thin strata of loamy sand, silty clay loam, or very fine sandy loam. Value is 4 to 6 (3 to 5 moist), and chroma is 4 to 6.

Redhouse Series

The Redhouse series consists of very deep, well drained, moderately permeable soils on alluvial fans and fan terraces. These soils formed in alluvium derived from sandstone and shale. Slopes range from 2 to 8 percent. Elevation is 3,700 to 5,000 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 52 to 56 degrees F.

These soils are fine-loamy, mixed, mesic Typic Calciorthids.

Typical pedon of Redhouse fine sandy loam, 2 to 8 percent slopes, in Comb Wash, about 100 feet north and 500 feet east of the southwest corner of sec. 31, T. 39 S., R. 21 E.

A—0 to 5 inches; reddish brown (2.5YR 5/4) fine sandy loam, reddish brown (2.5YR 4/4) moist; weak thin platy structure; soft, very friable; few very fine, fine, and medium roots; few medium pores; moderately

calcareous; disseminated carbonates; moderately alkaline (pH 8.4); abrupt smooth boundary.
Bw1—5 to 13 inches; red (2.5YR 5/6) sandy clay loam, red (2.5YR 4/6) moist; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; few very fine and fine pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.4); gradual smooth boundary.
Bw2—13 to 24 inches; red (2.5YR 5/6) gravelly sandy clay loam, red (2.5YR 4/6) moist; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; few very fine and fine pores; about 15 percent gravel; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.4); gradual smooth boundary.
Bw3—24 to 34 inches; red (2.5YR 5/6) gravelly sandy clay loam, red (2.5YR 4/6) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and plastic; common very fine and fine roots; few very fine and few fine pores; about 5 percent cobbles and 25 percent pebbles; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.4); clear wavy boundary.
Bk1—34 to 56 inches; red (2.5YR 5/6) gravelly sandy clay loam, red (2.5YR 4/6) moist; massive; hard, firm, sticky and plastic; few very fine and fine roots; common very fine and fine and few medium pores; about 20 percent gravel; strongly calcareous; disseminated and segregated carbonates in filaments; strongly alkaline (pH 8.6); clear wavy boundary.
Bk2—56 to 60 inches; red (2.5YR 5/6) sandy clay loam, red (2.5YR 4/6) moist; massive; hard, firm, sticky and plastic; common very fine and fine pores; about 10 percent gravel; moderately calcareous; disseminated carbonates; strongly alkaline (pH 8.5).

Depth to the calcic horizon ranges from 20 to 37 inches. Bedrock is at a depth of 60 inches or more. The particle-size control section is 20 to 35 percent clay and has 3 to 25 percent rock fragments, mainly pebbles.

The A horizon has hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 4 to 6. It is fine sandy loam or gravelly fine sandy loam.

The Bw horizon has hue of 2.5YR or 5YR and value of 4 or 5. It is sandy clay loam or gravelly sandy clay loam. It is moderately alkaline or strongly alkaline.

The Bk horizon has hue of 2.5YR or 5YR and value of 5 or 6 (4 or 5 moist). It is sandy clay loam or gravelly sandy clay loam. It is moderately alkaline or strongly alkaline.

Rizno Series

The Rizno series consists of very shallow and shallow, well drained, moderately rapidly permeable soils on structural benches, mesas, and cuestas. These soils formed in eolian material and residuum derived dominantly from sandstone. Slopes range from 3 to 30 percent. Elevation is 4,700 to 8,000 feet. Average annual precipitation is 8 to 14 inches, and mean annual air temperature is 46 to 56 degrees F.

These soils are loamy, mixed (calcareous), mesic Lithic Ustic Torriorthents.

Typical pedon of Rizno fine sandy loam, in an area of Rizno-Rock outcrop complex; above Owl Creek Canyon, about 1,500 feet east and 500 feet south of the northwest corner of sec. 22, T. 38 S., R. 19 E.

A—0 to 5 inches; light reddish brown (5YR 6/4) fine sandy loam, reddish brown (5YR 4/4) moist; weak fine and medium subangular blocky structure; soft, friable; few very fine and fine roots; few very fine and fine pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.
C1—5 to 13 inches; light reddish brown (5YR 6/4) fine sandy loam, reddish brown (5YR 4/4) moist; massive; soft, friable; common very fine and fine roots; few very fine tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.
C2—13 to 19 inches; light reddish brown (5YR 6/4) fine sandy loam, reddish brown (5YR 4/4) moist; massive; soft, friable; few very fine, fine, and medium roots; few very fine and fine tubular pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.2); abrupt smooth boundary.
R—19 inches; hard sandstone bedrock.

The depth to sandstone bedrock ranges from 4 to 20 inches. The content of clay in the particle-size control section ranges from 5 to 18 percent. Hue is 2.5YR or 5YR, value is 5 or 6 (3 to 5 moist), and chroma is 4 to 8.

The A horizon is fine sandy loam, sandy loam, channery loam, or channery sandy loam. It is mildly alkaline or moderately alkaline. The C horizon is fine sandy loam or sandy loam.

Robroost Family

The Robroost family consists of deep and very deep, well drained, moderately rapidly permeable soils on dissected hogbacks. These soils formed in material weathered from gypsum and gypsiferous sandstone.

Slopes range from 3 to 50 percent. Elevation is 4,300 to 5,200 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 52 to 56 degrees F.

These soils are coarse-loamy, mixed, mesic Cambic Gypsiorthids.

Reference pedon of a Robroost family soil, in an area of Robroost family-Gypsum land complex; in Comb Wash, about 500 feet south and 500 feet east of the northwest corner of sec. 25, T. 40 S., R. 20 E.

A—0 to 1 inch; yellowish red (5YR 5/6) very fine sandy loam, yellowish red (5YR 4/6) moist; weak thin platy structure parting to weak fine granular; soft, friable, slightly sticky and slightly plastic; few fine roots; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0); abrupt wavy boundary.

By1—1 to 9 inches; light reddish brown (5YR 6/4) gravelly fine sandy loam, reddish brown (5YR 5/4) moist; massive; soft, very friable; few fine roots; common fine and many medium pores; 50 percent gypsum crystals in the matrix; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear wavy boundary.

By2—9 to 20 inches; pink (5YR 7/4) gravelly fine sandy loam, yellowish red (5YR 4/6) moist; massive; soft, very friable; few fine roots; common fine and many medium pores; 50 percent gypsum crystals in the matrix; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear irregular boundary.

By3—20 to 34 inches; pink (5YR 7/4) fine sandy loam, yellowish red (5YR 4/6) moist; massive; hard, very friable; few fine roots; common fine and medium pores; many horizontal gypsum veins; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0); gradual smooth boundary.

By4—34 to 45 inches; pink (5YR 7/4) very fine sandy loam, yellowish red (5YR 4/6) moist; massive; hard, very friable; few fine roots; common fine and medium pores; common horizontal gypsum veins; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear wavy boundary.

By5—45 to 60 inches; pink (5YR 7/4) gravelly very fine sandy loam, yellowish red (5YR 4/6) moist; massive; hard, very friable; 25 percent pebbles; pebbles coated with gypsum; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0).

The depth to gypsiferous sandstone or gypsum ranges from 40 to more than 60 inches. Crystalline gypsum occurs in the profile as veins and soft masses and as coatings on the underside of rock fragments. The content of clay in the particle-size control section ranges from 5 to 15 percent, based on field estimates. The soils are mildly alkaline or moderately alkaline.

The A horizon has hue of 2.5YR or 5YR. It is loam, fine sandy loam, or very fine sandy loam.

The By horizon has hue of 2.5YR or 5YR, value of 6 or 7 (4 to 6 moist), and chroma of 4 to 6. It is fine sandy loam, gravelly fine sandy loam, gravelly very fine sandy loam, or very fine sandy loam. It has thin strata of loamy coarse sand.

Ruinpoint Series

The Ruinpoint series consists of very deep, well drained, moderately permeable soils on mesas and structural benches. These soils formed in eolian material and some alluvium derived from sandstone. Slopes range from 1 to 8 percent. Elevation is 5,000 to 6,000 feet. Average annual precipitation is 8 to 12 inches, and mean annual air temperature is 48 to 53 degrees F.

These soils are fine-silty, mixed, mesic Ustollic Camborthids.

Typical pedon of Ruinpoint very fine sandy loam, in an area of Ruinpoint-Cahona association; about 1,000 feet north and 500 feet west of the southeast corner of sec. 8, T. 39 S., R. 26 E.

A—0 to 2 inches; yellowish red (5YR 5/6) very fine sandy loam, reddish brown (5YR 4/4) moist; weak medium platy structure; soft, very friable, sticky; few very fine and fine roots; many fine interstitial pores; moderately alkaline (pH 8.0); clear smooth boundary.

Bw—2 to 13 inches; yellowish red (5YR 4/6) silt loam, yellowish red (5YR 4/6) moist; moderate medium subangular blocky structure; soft, friable, sticky and slightly plastic; common very fine, fine, and medium roots; common fine tubular pores; moderately alkaline (pH 8.0); clear smooth boundary.

Bk1—13 to 23 inches; reddish yellow (5YR 6/6) silt loam, yellowish red (5YR 4/6) moist; massive; slightly hard, firm, sticky and slightly plastic; common very fine, fine, and medium roots; common fine tubular pores; strongly calcareous; disseminated carbonates in fine soft veins; moderately alkaline (pH 8.2); clear smooth boundary.

Bk2—23 to 60 inches; reddish yellow (5YR 6/6) silt loam, yellowish red (5YR 5/6) moist; massive; slightly hard, firm, sticky and slightly plastic; few very fine, fine, and medium roots; few fine tubular pores; strongly calcareous; disseminated carbonates in fine soft veins; moderately alkaline (pH 8.4).

The depth to bedrock is more than 60 inches. Depth to the calcic horizon is 8 to 20 inches. The texture is silt loam or silty clay loam. The content of clay is 20 to 30 percent.

The A horizon has value of 4 or 5 and chroma of 4 to 8. It is mildly alkaline or moderately alkaline.

The Bw horizon has value of 4 to 6 dry and moist and chroma of 4 to 6. It is mildly alkaline or moderately alkaline.

The Bk horizon has value of 6 to 8 (4 to 6 moist) and chroma of 3 to 8. It is moderately alkaline or strongly alkaline.

Shalet Series

The Shalet series consists of very shallow and shallow, well drained, moderately slowly permeable soils on structural benches and hillsides. These soils formed in material weathered from shale. Slopes range from 4 to 15 percent. Elevation is 3,700 to 5,000 feet. Average annual precipitation is 5 to 8 inches, and mean annual air temperature is 52 to 56 degrees F.

These soils are loamy, mixed (calcareous), mesic, shallow Typic Torriorthents.

Typical pedon of Shalet clay loam, in an area of Shalet-Moenkopie-Badland complex; 3 miles east of Chocolate Drop, about 4,000 feet south and 1,000 feet east of the southwest corner of sec. 32, T. 36 S., R. 15 E., in an unsectionalized area:

A—0 to 2 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few fine interstitial pores; about 10 percent pebbles and 1 percent cobbles; strongly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); abrupt wavy boundary.

C—2 to 12 inches; reddish brown (5YR 5/4) clay loam, reddish brown (5YR 4/4) moist; weak medium subangular blocky structure; hard, firm, sticky and plastic; few fine roots; few fine tubular pores; strongly calcareous; disseminated carbonates; moderately alkaline (pH 8.2); clear wavy boundary.

Cr—12 inches; weathered shale bedrock.

The depth to weathered bedrock ranges from 5 to 20 inches. Hue is 2.5YR or 5YR, value is 5 or 6 (4 or 5 moist), and chroma is 4 to 6.

Sheppard Series

The Sheppard series consists of very deep, somewhat excessively drained, rapidly permeable soils on structural benches, canyon floors, and mesas. These soils formed in eolian material derived from sandstone. Slopes range from 2 to 15 percent. Elevation is 3,700 to 5,000 feet. Average annual precipitation is 5 to 8 inches, and mean annual air temperature is 51 to 56 degrees F.

These soils are mixed, mesic Typic Torripsamments.

Typical pedon of Sheppard loamy fine sand, in an area of Bankard family-Sheppard complex; in Red Canyon, about 2,000 feet east and 1,000 feet north of the southwest corner of sec. 2, T. 37 S., R. 14 E.

C1—0 to 4 inches; light red (2.5YR 6/6) loamy fine sand, red (2.5YR 4/6) moist; single grain; loose; few fine roots; many interstitial pores; mildly alkaline (pH 7.8); gradual wavy boundary.

C2—4 to 60 inches; light red (2.5YR 6/6) loamy fine sand, red (2.5YR 4/6) moist; single grain; loose; few fine and medium roots; many interstitial pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0).

The depth to bedrock is more than 60 inches. The texture is fine sand or loamy fine sand. Hue is 2.5YR or 5YR, value is 5 or 6 (4 or 5 moist), and chroma is 4 to 8. The soils are mildly alkaline to strongly alkaline.

Skos Series

The Skos series consists of very shallow and shallow, well drained, moderately permeable soils on structural benches, hillsides, mountainsides, and ridges. These soils formed in residuum and colluvium derived from interbedded sandstone and shale. Slopes range from 4 to 30 percent. Elevation is 4,400 to 8,000 feet. Average annual precipitation is 8 to 14 inches, and mean annual air temperature is 47 to 54 degrees F.

These soils are loamy-skeletal, mixed (calcareous), mesic Lithic Ustic Torriorthents.

Typical pedon of Skos channery loam, in an area of Skos, warm-Rock outcrop complex; on the rim of Clay Hills, 1,000 feet north and 1,000 feet west of the southeast corner of sec. 11, T. 38 S., R. 15 E.

A—0 to 1 inch; reddish brown (2.5YR 4/4) channery loam, red (2.5YR 4/6) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; few fine pores; about 25 percent channers, 5 percent gravel; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.0); abrupt smooth boundary.

C—1 to 6 inches; reddish brown (2.5YR 4/4) very channery sandy clay loam, reddish brown (2.5YR 4/4) moist; massive; hard, firm, sticky and plastic; few very fine and fine roots; few fine pores; about

40 percent channers, 10 percent gravel; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.0); clear wavy boundary.
R—6 inches; sandstone bedrock.

The depth to bedrock ranges from 4 to 20 inches. The particle-size control section has 35 to 60 percent rock fragments and is 20 to 35 percent clay. Hue is 2.5YR or 5YR. At elevations above 7,000 feet, the soils are on south-facing mountainsides.

The A horizon has value of 4 or 5 (3 or 4 moist) and chroma of 4 to 6. It is channery fine sandy loam, channery loam, or channery sandy loam. It is mildly alkaline or moderately alkaline and is slightly calcareous or moderately calcareous.

The C horizon has value of 4 to 6 (3 to 5 moist) and chroma of 4 to 6. It is very channery sandy clay loam, very gravelly clay loam, very channery clay loam, or very gravelly sandy clay loam.

Strych Series

The Strych series consists of very deep, well drained, moderately rapidly permeable soils on alluvial fans, hillsides, and mountainsides. These soils formed in colluvium and alluvium derived from sandstone and shale. Slopes range from 20 to 70 percent. Elevation is 5,000 to 8,900 feet. Average annual precipitation is 8 to 15 inches, and mean annual air temperature is 45 to 53 degrees F.

These soils are loamy-skeletal, mixed, mesic Ustollic Calciorthids.

Typical pedon of Strych extremely bouldery fine sandy loam, in an area of Bodot-Strych-Skos association; below Tables of the Sun, about 7,000 feet south and 2,000 feet west of the southeast corner of sec. 2, T. 37 S., R. 16 E., in an unsectionalized area:

A—0 to 8 inches; reddish brown (5YR 5/4) extremely bouldery fine sandy loam, reddish brown (5YR 4/4) moist; weak medium platy structure parting to weak fine granular; soft, very friable; about 20 percent boulders, 10 percent stones, 20 percent cobbles, and 20 percent pebbles; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.6); clear wavy boundary.
Bk1—8 to 24 inches; yellowish red (5YR 5/8) very stony fine sandy loam, yellowish red (5YR 5/6) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; about 20 percent pebbles, 25 percent stones, and 5 percent cobbles; moderately calcareous; segregated carbonates in few fine veins and coating the bottom of rock fragments; mildly alkaline (pH 7.6); clear wavy boundary.
Bk2—24 to 48 inches; reddish yellow (5YR 6/6) extremely stony fine sandy loam, yellowish red (5YR 5/8) moist; massive; slightly hard, friable; about 25 percent pebbles, 25 percent cobbles, and 30 percent stones; moderately calcareous; segregated carbonates in few fine veins and coating the bottom of rock fragments; mildly alkaline (pH 7.6); gradual wavy boundary.
Bk3—48 to 60 inches; reddish yellow (5YR 6/6) extremely stony fine sandy loam, yellowish red (5YR 5/8) moist; massive; slightly hard, friable; about 20 percent pebbles, 30 percent cobbles, and 30 percent stones; strongly calcareous; segregated carbonates in common medium veins; mildly alkaline (pH 7.8).

The depth to bedrock is 60 inches or more. The particle-size control section has 35 to 75 percent rock fragments consisting of boulders, stones, cobbles, and pebbles of sandstone and is 10 to 18 percent clay. Depth to the top of the calcic horizon ranges from 11 to 39 inches.

The A horizon has value of 5 or 6 (4 or 5 moist) and chroma of 4 to 6. It is extremely bouldery fine sandy loam, extremely bouldery sandy loam, very stony fine sandy loam, or very stony sandy clay loam.

The Bk horizon has value of 4 to 6 (4 or 5 moist) and chroma of 4 to 8. It is very cobbly loam, very stony fine sandy loam, extremely cobbly fine sandy loam, or very cobbly sandy loam. It has thin strata of gravelly very fine sandy loam, very fine sandy loam, clay loam, and sandy clay loam. It is mildly alkaline to strongly alkaline and is moderately calcareous or strongly calcareous.

Suwanee Series

The Suwanee series consists of very deep, well drained, moderately slowly permeable soils on stream terraces. These soils formed in alluvium derived from sedimentary rocks. Slopes range from 1 to 5 percent. Elevation is 5,200 to 5,500 feet. Average annual precipitation is 10 to 12 inches, and mean annual air temperature is 52 to 54 degrees F.

These soils are fine-loamy, mixed (calcareous), mesic Ustic Torrifluvents.

Typical pedon of Suwanee silt loam, 1 to 5 percent slopes, in Montezuma Canyon, 50 feet east and 1,300 feet north of the southwest corner of sec. 23, T. 35 S., R. 24 E.

A—0 to 7 inches; brown (7.5YR 5/4) silt loam, dark brown (7.5YR 4/2) moist; weak very fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; slightly calcareous; disseminated carbonates; mildly

alkaline (pH 7.6); clear smooth boundary.
C1—7 to 16 inches; brown (7.5YR 5/4) loam, dark brown (7.5YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; few fine pores; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.6); clear smooth boundary.
C2—16 to 28 inches; light brown (7.5YR 6/4) fine sandy loam, brown (7.5YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, medium, and coarse roots; few very fine pores; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.6); clear smooth boundary.
C3—28 to 35 inches; brown (7.5YR 5/4) silty clay loam, dark brown (7.5YR 4/4) moist; moderate coarse prismatic structure; very hard, firm, very sticky and very plastic; few very fine, fine, and medium roots; few very fine pores; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.6); abrupt smooth boundary.
C4—35 to 38 inches; light brown (7.5YR 6/4) sandy clay loam, brown (7.5YR 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.6); abrupt smooth boundary.
C5—38 to 60 inches; brown (7.5YR 5/4) silty clay loam, dark brown (7.5YR 4/4) moist; moderate coarse prismatic structure; hard, friable, sticky and slightly plastic; few very fine and fine roots; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.6).

The A horizon has hue of 7.5YR or 5YR and chroma of 3 or 4. It is mildly alkaline or moderately alkaline.

The C horizon has hue of 7.5YR or 5YR, value of 5 or 6 (4 or 5 moist), and chroma of 2 to 4. It is stratified fine sandy loam to silty clay loam. It is mildly alkaline or moderately alkaline.

Trail Series

The Trail series consists of very deep, well drained, rapidly permeable soils on flood plains. These soils formed in alluvium derived from sedimentary rocks. Slopes are 0 to 1 percent. Elevation is 4,200 to 5,000 feet. Average annual precipitation is 6 to 8 inches, and mean annual air temperature is 54 to 56 degrees F.

These soils are sandy, mixed, mesic Typic Torrifluvents.

Typical pedon of Trail fine sandy loam, 0 to 1 percent slopes, about 0.5 miles east of Bluff, 1,000 feet east and 1,600 feet north of the southwest corner of sec. 30, T. 40 S., R. 22 E.

A1—0 to 2 inches; light yellowish brown (10YR 6/4) fine sandy loam, yellowish brown (10YR 5/4) moist; single grain; loose; few very fine and fine roots; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.6); abrupt smooth boundary.
A2—2 to 8 inches; light yellowish brown (10YR 6/4) fine sandy loam, brown (10YR 5/3) moist; weak thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; few very fine and fine pores; moderately calcareous; disseminated carbonates; mildly alkaline (pH 7.6); abrupt smooth boundary.
C1—8 to 26 inches; very pale brown (10YR 7/4) loamy sand, yellowish brown (10YR 5/4) moist; single grain; loose; few very fine roots; slightly calcareous; disseminated carbonates; mildly alkaline (pH 7.6); clear smooth boundary.
C2—26 to 40 inches; very pale brown (10YR 7/3) loamy fine sand, light yellowish brown (10YR 6/4) moist; common fine distinct reddish yellow (7.5YR 6/6) mottles; single grain; loose; few very fine roots; slightly calcareous; disseminated carbonates; mildly alkaline (pH 7.6); gradual smooth boundary.
C3—40 to 60 inches; very pale brown (10YR 7/3) loamy fine sand, light yellowish brown (10YR 6/4) moist; single grain; loose; few very fine roots; slightly calcareous; disseminated carbonates; mildly alkaline (pH 7.6).

The A horizon has chroma of 3 or 4. The C horizon has value of 6 or 7 (4 to 6 moist) and chroma of 3 to 6. It is loamy sand or loamy fine sand.

Yarts Series

The Yarts series consists of very deep, well drained, moderately rapidly permeable soils on structural benches, hillsides, and mesas. These soils formed in eolian material and alluvium derived from sandstone. Slopes range from 5 to 30 percent. Elevation is 5,200 to 7,000 feet. Average annual precipitation is 12 to 14 inches, and mean annual air temperature is 46 to 50 degrees F.

These soils are coarse-loamy, mixed (calcareous), mesic Ustic Torriorthents.

Typical pedon of Yarts fine sandy loam, 5 to 30 percent slopes, on Cedar Mesa, about 500 feet north and 500 feet west of the southeast corner of sec. 17, T. 39 S., R. 18 E.

A—0 to 5 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 4/6) moist; moderate thick platy structure; slightly hard, very friable; common very fine and fine roots; few fine tubular pores; slightly calcareous; disseminated carbonates;

moderately alkaline (pH 8.4); abrupt smooth boundary.

C1—5 to 10 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 4/6) moist; massive; slightly hard, very friable; common very fine and fine roots; few fine tubular pores; slightly calcareous; disseminated carbonates; moderately alkaline (pH 8.4); clear smooth boundary.

C2—10 to 24 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 4/6) moist; massive; hard, friable; common very fine and few fine and medium roots; common very fine and few medium pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.4); clear smooth boundary.

C3—24 to 41 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 4/6) moist; massive; hard, friable; few very fine, fine, and medium roots; common very fine pores; moderately calcareous; disseminated carbonates; moderately alkaline (pH 8.4); clear smooth boundary.

Ck1—41 to 48 inches; yellowish red (5YR 5/6) fine sandy loam, reddish brown (5YR 4/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine and medium roots; common very fine and few fine tubular pores; slightly calcareous; segregated carbonates in few fine filaments; moderately alkaline (pH 8.2); clear smooth boundary.

Ck2—48 to 60 inches; yellowish red (5YR 5/6) fine sandy loam, yellowish red (5YR 4/6) moist; massive; very hard, firm, slightly sticky and slightly plastic; few medium roots; common very fine and few fine tubular pores; moderately calcareous; segregated carbonates in common fine filaments; moderately alkaline (pH 8.4).

The depth to bedrock is more than 60 inches. Chroma is 4 to 6. The soils are mildly alkaline or moderately alkaline and are slightly calcareous or moderately calcareous.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 2
Low	2 to 3.75
Moderately low	3.75 to 5
Moderate	5 to 7.5
Moderately high	7.5 to 10
High	more than 10

Back slope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Back slopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus to allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte. An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche. A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft, thin layers in the soil or as hard, thick beds just beneath the solum, or it is exposed at the surface by erosion.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil. A soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax plant community. The plant community on a given site that will be established if present environmental conditions continue to prevail and the site is properly managed.

Coarse fragments. Mineral or rock particles larger than 2 millimeters in diameter.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Conglomerate. A coarse grained, clastic rock composed of rounded to subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—Readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—Adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping (or contour farming). Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coppice dune. A small dune of fine-grained soil material stabilized around shrubs or small trees.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cuesta. An asymmetric, homoclinal ridge capped by resistant rock layers of slight or moderate dip.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. In this survey, the following terms are used to describe the depth of the soils over bedrock or a cemented hardpan:

Very shallow	less than 10 inches
Shallow	10 to 20 inches
Moderately deep	20 to 40 inches
Deep	40 to 60 inches
Very deep	more than 60 inches

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Desert pavement. A layer of gravel or coarser fragments on a desert surface that was emplaced by upward movement of fragments from underlying sediment or remains after finer particles have been removed by running water or the wind.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—These soils have very high and high hydraulic conductivity and a low water-holding capacity. They are not suited to crop production unless irrigated.

Somewhat excessively drained.—These soils have high hydraulic conductivity and a low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained.—These soils have an intermediate water-holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

Moderately well drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields of some field crops are adversely affected unless a drainage system is installed. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

Somewhat poorly drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted unless a drainage system is installed. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

Poorly drained.—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

Very poorly drained.—These soils are wet to the surface most of the time. The wetness prevents the growth of important crops (except for rice) unless a drainage system is installed.

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley, generally more open and with broader bottom land than a ravine or gulch.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface. In this survey, the susceptibility of the soils to wind erosion and water erosion are rated. Ratings apply to the bare soil surface. A rating of *slight* means that exposed soil particles are only slightly susceptible to erosion; *moderate*, that exposed soil particles are moderately susceptible to erosion; and *severe*, that exposed soil particles are highly susceptible to erosion.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess salts (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Fine textured soil. Sandy clay, silty clay, or clay.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (or 300 meters) and fringes a mountain range or high-plateau escarpment.

Foot slope. The inclined surface at the base of a hill.

Forb. Any herbaceous plant not a grass or a sedge.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai. Commonly a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of Vertisols—clayey soils having a high coefficient of expansion and contraction with changes in moisture content.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction

between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a combination of these. The combined A and B horizons generally are called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.
Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.
Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.
Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.
Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.
Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.
Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.
Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.
Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mesa. A broad, nearly flat topped and commonly isolated upland mass characterized by summit widths that are more than the heights of bounding erosional scarps.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides and a surface of considerably bare rock. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Muck. Dark colored, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Observed rooting depth. Depth to which roots have been observed to penetrate.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. In this survey, the following classes of organic matter content are recognized:

Very low ..... less than 1 percent
Low ..... 1 to 3 percent
Moderate ..... 3 to 5 percent
Moderately high ..... 5 to 10 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil, adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow ..... less than 0.06 inch
Slow ..... 0.06 to 0.2 inch
Moderately slow ..... 0.2 to 0.6 inch
Moderate ..... 0.6 inch to 2.0 inches
Moderately rapid ..... 2.0 to 6.0 inches
Rapid ..... 6.0 to 20 inches
Very rapid ..... more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid permeability or an impermeable layer near the surface, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. The application of fire to land under such conditions of weather, soil moisture, and time of day as presumably will result in the intensity of heat and spread required to accomplish specific forest management, wildlife, grazing, or fire hazard reduction purposes.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors

responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Site class. A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then

multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey the following slope classes are recognized:

Nearly level	0 to 2 percent
Gently sloping	2 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 to 50 percent
Very steep	50 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher), or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 6 to 15 inches (15 to 38 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stream terrace. A series of platforms in a stream valley that are more or less parallel to the stream channel and originally formed near the level of the stream.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Talus. Rock fragments of any size or shape, commonly coarse and angular, derived from and lying at the base of a cliff or very steep, rock slope. The accumulated mass of such loose, broken rock formed chiefly by falling, rolling, or sliding.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be

further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1951-81 at Blanding, Utah)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	38.8	16.4	27.6	55	-5	21	1.30	0.24	2.12	4	12.1
February	44.7	21.6	33.2	62	1	42	.93	.16	1.53	3	7.9
March	51.4	26.4	38.9	70	9	86	.85	.11	1.42	3	5.6
April	61.5	33.1	47.3	77	17	236	.68	.24	1.03	2	2.3
May	72.3	41.4	56.9	88	26	524	.59	.10	.96	2	.3
June	83.8	50.1	67.0	96	35	810	.37	.01	.63	1	.0
July	89.4	57.5	73.5	98	49	1,039	1.09	.31	1.71	3	.0
August	86.2	55.3	70.8	97	44	955	1.38	.32	2.21	4	.0
September	78.8	47.4	63.1	92	33	693	.91	.20	1.46	2	.0
October	66.1	37.3	51.7	82	21	367	1.46	.36	2.34	4	.1
November	50.7	26.3	38.5	67	9	73	.88	.39	1.30	3	3.3
December	40.8	18.5	29.7	56	-1	25	1.25	.26	2.02	3	10.4
Yearly:											
Average	63.7	35.9	49.9	---	---	---	---	---	---	---	---
Extreme	---	---	---	98	-7	---	---	---	---	---	---
Total	---	---	---	---	---	4,871	11.69	8.45	14.70	34	42.0

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1951-81 at Blanding, Utah)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 10	May 12	May 27
2 years in 10 later than--	Apr. 26	May 7	May 22
5 years in 10 later than--	Apr. 16	Apr. 27	May 12
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 14	Oct. 2	Sept. 25
2 years in 10 earlier than--	Oct. 20	Oct. 8	Oct. 1
5 years in 10 earlier than--	Nov. 2	Oct. 20	Oct. 13

TABLE 3.--GROWING SEASON

(Recorded in the period 1951-81 at Blanding, Utah)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	172	151	133
8 years in 10	181	159	140
5 years in 10	199	174	153
2 years in 10	216	190	167
1 year in 10	225	198	174

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
1	Arches-Rizno-Mido complex	10,116	0.6
2	Badland-Rock outcrop complex	14,460	0.9
3	Bankard family-Riverwash complex	7,126	0.4
4	Bankard family-Sheppard complex	3,642	0.2
5	Barx very fine sandy loam, 1 to 4 percent slopes	23,291	1.4
6	Barx-Strych-Skos complex	8,795	0.5
7	Bluechief-Limeridge-Nakai complex, 1 to 6 percent slopes	49,674	3.0
8	Bodot-Strych-Skos association	64,367	3.9
9	Bookcliff-Bookcliff, dry, complex	4,686	0.3
10	Bookcliff-Skos-Strych complex	4,985	0.3
11	Cahona very fine sandy loam, 1 to 8 percent slopes	3,372	0.2
12	Gilco silt loam, 0 to 1 percent slopes	358	*
13	Gilco silty clay loam, 0 to 1 percent slopes	266	*
14	Gilco-Trail complex, 0 to 2 percent slopes	2,354	0.1
15	Green River-Bankard families-Riverwash association, 0 to 4 percent slopes	8,721	0.5
16	Kiln loam, 2 to 15 percent slopes	2,434	0.1
17	Limeridge gravelly very fine sandy loam, 4 to 12 percent slopes	14,184	0.9
18	Littlenan-Moenkopie-Recapture complex	14,153	0.9
19	Littlenan-Ruinpoint-Rizno association, 1 to 20 percent slopes	28,722	1.7
20	Mido-Riverwash complex	1,257	0.1
21	Mido-Rizno complex	10,819	0.7
22	Mido-Rock outcrop-Arches complex	18,230	1.1
23	Milok fine sandy loam, 1 to 6 percent slopes	10,831	0.7
24	Milok-Mivida complex	25,136	1.5
25	Milok-Skos-Strych complex	3,258	0.2
26	Mivida fine sandy loam, 1 to 6 percent slopes	5,105	0.3
27	Mivida-Pastern-Rock outcrop complex, 1 to 8 percent slopes	16,671	1.0
28	Moenkopie-Moenkopie, warm, complex	53,348	3.2
29	Moenkopie-Rock outcrop complex	65,760	4.0
30	Moffat fine sandy loam, 0 to 2 percent slopes	257	*
31	Moffat loamy fine sand, 2 to 5 percent slopes	633	*
32	Myton family-Nakai-Redhouse complex	34,407	2.1
33	Myton family-Rock outcrop complex	13,060	0.8
34	Myton family-Shalet-Badland complex	17,981	1.1
35	Myton family-Skos-Rock outcrop association	86,045	5.2
36	Nakai fine sandy loam, 1 to 6 percent slopes	7,329	0.4
37	Nakai-Moffat-Sheppard association	16,324	1.0
38	Oljeto family, 10 to 40 percent slopes	239	*
39	Pastern-Rizno-Rock outcrop complex	12,958	0.8
40	Piute-Sheppard-Rock outcrop association	49,170	3.0
41	Recapture fine sandy loam, 0 to 2 percent slopes	764	*
42	Recapture-Redbank family-Bankard family association, 0 to 8 percent slopes	2,169	0.1
43	Redbank family-Riverwash-Green River family association, 0 to 4 percent slopes	6,724	0.4
44	Redhouse fine sandy loam, 2 to 8 percent slopes	2,878	0.2
45	Rizno-Barx-Yarts complex	130,477	8.0
46	Rizno-Cahona-Rock outcrop complex	34,500	2.1
47	Rizno-Littlenan-Bodot association	70,344	4.3
48	Rizno-Mido complex	5,225	0.3
49	Rizno-Rock outcrop complex	82,905	5.0
50	Rizno-Ruinpoint-Rock outcrop complex	65,065	3.9
51	Rizno-Skos-Rock outcrop complex	81,864	4.9
52	Rizno-Strych association	10,097	0.6
53	Robroost family-Gypsum land complex	7,241	0.4
54	Rock outcrop-Piute-Sheppard complex	99,930	6.0
55	Rock outcrop-Piute-Skos association	85,362	5.2
56	Rock outcrop-Strych-Rizno association	42,749	2.6
57	Rubble land-Rock outcrop complex	12,607	0.8
58	Ruinpoint-Cahona association	30,822	1.9
59	Shalet-Moenkopie-Badland complex	3,608	0.2
60	Skos channery fine sandy loam, 4 to 30 percent slopes	3,865	0.2
61	Skos-Rock outcrop complex	3,026	0.2
62	Skos, warm-Rock outcrop complex	46,506	2.8
63	Strych-Rizno-Strych, very steep, association	36,336	2.2

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
64	Strych-Skos-Badland complex	5,712	0.3
65	Strych, warm-Skos, warm-Badland complex	24,149	1.5
66	Suwanee silt loam, 1 to 5 percent slopes	1,389	0.1
67	Trail fine sandy loam, 0 to 1 percent slopes	1,240	0.1
68	Yarts fine sandy loam, 5 to 30 percent slopes	1,406	0.1
	Water	40,835	2.5
	Total	1,654,319	100.0

* Less than 0.1 percent.

TABLE 5.--PRIME FARMLAND

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
12	Gilco silt loam, 0 to 1 percent slopes (where irrigated)
13	Gilco silty clay loam, 0 to 1 percent slopes (where irrigated)
14	Gilco-Trail complex, 0 to 2 percent slopes (where irrigated)
30	Moffat fine sandy loam, 0 to 2 percent slopes (where irrigated)
31	Moffat loamy fine sand, 2 to 5 percent slopes (where irrigated)
66	Suwanee silt loam, 1 to 5 percent slopes (where irrigated)
67	Trail fine sandy loam, 0 to 1 percent slopes (where irrigated)

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION

(Only the soils that support rangeland vegetation suitable for grazing are listed)

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
1*:					
Arches	Semidesert Shallow Sand (Blackbrush).	Favorable	500	Blackbrush	45
		Normal	350	Indian ricegrass	15
		Unfavorable	250	Mormon tea	10
				Munro globemallow	5
Rizno	Semidesert Shallow Sandy Loam (Blackbrush).	Favorable	500	Blackbrush	65
		Normal	350	Galleta	5
		Unfavorable	200	Torrey Mormon tea	5
				Bigelow sagebrush	5
				Indian ricegrass	5
Mido	Semidesert Sand (Fourwing Saltbush).	Favorable	800	Indian ricegrass	20
		Normal	600	Needleandthread	10
		Unfavorable	300	Fourwing saltbush	10
				Galleta	5
				Mormon tea	5
				Dropseed	5
				Sandhill muhly	5
				Munro globemallow	5
				Sand sagebrush	5
				Finebranched eriogonum	5
3*:					
Bankard family	Alkali Bottom (Black Greasewood).	Favorable	900	Black greasewood	45
		Normal	800	Alkali sacaton	20
		Unfavorable	700	Seepweed	10
				Bottlebrush squirreltail	5
				Sand dropseed	5
Riverwash.					
4*:					
Bankard family	Sandy Bottom (Fourwing Saltbush).	Favorable	900	Indian ricegrass	25
		Normal	650	Galleta	15
		Unfavorable	400	Fourwing saltbush	15
				Sand dropseed	10
				Needleandthread	5
				Globemallow	5
				Mormon tea	5
				Winterfat	5
Sheppard	Desert Sand (Sand Sagebrush)--	Favorable	700	Indian ricegrass	30
		Normal	400	Sand dropseed	10
		Unfavorable	200	Sand sagebrush	10
				Mormon tea	5
				Fourwing saltbush	5
				Sandhill muhly	5
				Globemallow	5
				Finebranched eriogonum	5

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
5---------- Barx	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Wyoming big sagebrush---------	20
		Normal	1,000	Indian ricegrass---------	15
		Unfavorable	800	Needleandthread---------	15
				Fourwing saltbush---------	5
				Muttongrass---------	5
				Blue grama---------	5
				Galleta---------	5
				Sand dropseed---------	5
				Bottlebrush squirreltail------	5
				Winterfat---------	5
6*:					
Barx----------	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Wyoming big sagebrush---------	20
		Normal	1,000	Indian ricegrass---------	15
		Unfavorable	800	Needleandthread---------	15
				Fourwing saltbush---------	5
				Muttongrass---------	5
				Blue grama---------	5
				Galleta---------	5
				Sand dropseed---------	5
				Bottlebrush squirreltail------	5
				Winterfat---------	5
Strych----------	Upland Steep Stony Loam (Pinyon-Utah Juniper).	Favorable	600	Saline wildrye---------	40
		Normal	500	Indian ricegrass---------	10
		Unfavorable	350	Roundleaf buffaloberry--------	10
				Galleta---------	5
				Rockgoldenrod---------	5
				Green Mormon tea---------	5
				Utah serviceberry---------	5
				Birchleaf mountainmahogany----	5
Skos----------	Upland Shallow Loam (Pinyon-Utah Juniper).	Favorable	600	Bigelow sagebrush---------	20
		Normal	400	Mormon tea---------	15
		Unfavorable	100	Galleta---------	5
				Indian ricegrass---------	5
				Nevada bluegrass---------	5
				Fine Douglas rabbitbrush------	5
				Mexican cliffrose---------	5
				Pricklypear---------	5
7*:					
Bluechief----------	Desert Sandy Loam (Blackbrush)	Favorable	500	Blackbrush---------	25
		Normal	450	Indian ricegrass---------	20
		Unfavorable	350	Galleta---------	15
				Cutler Mormon tea---------	10
				Spike dropseed---------	5
				Broom snakeweed---------	5
Limeridge----------	Desert Shallow Sandy Loam (Blackbrush).	Favorable	350	Blackbrush---------	55
		Normal	200	Galleta---------	10
		Unfavorable	100	Indian ricegrass---------	5
				Shadscale---------	5
				Mormon tea---------	5
				Broom snakeweed---------	5

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
7*:					
Nakai	Desert Sandy Loam (Fourwing Saltbush).	Favorable	550	Indian ricegrass	35
		Normal	450	Galleta	15
		Unfavorable	300	Dropseed	10
				Fourwing saltbush	10
				Globemallow	5
				Mormon tea	5
				Winterfat	5
8*:					
Bodot	Upland Steep Stony Loam (Pinyon-Utah Juniper).	Favorable	600	Saline wildrye	40
		Normal	500	Roundleaf buffaloberry	10
		Unfavorable	350	Indian ricegrass	10
				Galleta	5
				Utah serviceberry	5
				Birchleaf mountainmahogany	5
				Green Mormon tea	5
				Rockgoldenrod	5
Strych	Upland Steep Stony Loam (Pinyon-Utah Juniper).	Favorable	600	Saline wildrye	40
		Normal	500	Indian ricegrass	10
		Unfavorable	350	Roundleaf buffaloberry	10
				Galleta	5
				Rockgoldenrod	5
				Green Mormon tea	5
				Utah serviceberry	5
				Birchleaf mountainmahogany	5
Skos	Upland Shallow Loam (Pinyon-Utah Juniper).	Favorable	600	Bigelow sagebrush	20
		Normal	400	Mormon tea	15
		Unfavorable	100	Galleta	5
				Indian ricegrass	5
				Nevada bluegrass	5
				Fine Douglas rabbitbrush	5
				Mexican cliffrose	5
				Pricklypear	5
9*:					
Bookcliff	Mountain Loam (Mountain Big Sagebrush).	Favorable	1,800	Bluegrass	15
		Normal	1,400	Mountain big sagebrush	15
		Unfavorable	1,000	Needleandthread	10
				Wheatgrass	10
				Letterman needlegrass	5
				Mountain brome	5
				Snowberry	5
Bookcliff, dry	Mountain Loam (Oak)	Favorable	1,750	Gambel oak	30
		Normal	1,200	Bluegrass	10
		Unfavorable	650	Snowberry	10
				Wheatgrass	5
				Mountain big sagebrush	5
				Serviceberry	5
10*:					
Bookcliff	Mountain Loam (Oak)	Favorable	1,750	Gambel oak	30
		Normal	1,200	Bluegrass	10
		Unfavorable	650	Snowberry	10
				Wheatgrass	5
				Mountain big sagebrush	5
				Serviceberry	5

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
10*:					
Skos	Upland Shallow Loam (Pinyon-Utah Juniper).	Favorable	600	Bigelow sagebrush	20
		Normal	400	Mormon tea	15
		Unfavorable	100	Galleta	5
				Indian ricegrass	5
				Nevada bluegrass	5
				Fine Douglas rabbitbrush	5
				Mexican cliffrose	5
				Pricklypear	5
Strych	Upland Very Steep Stony Loam (Pinyon-Utah Juniper).	Favorable	550	Saline wildrye	30
		Normal	450	Utah serviceberry	15
		Unfavorable	300	Indian ricegrass	10
				Roundleaf buffaloberry	10
				Birchleaf mountainmahogany	10
				Green Mormon tea	5
				Snowberry	5
11----------Cahona	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Wyoming big sagebrush	20
		Normal	1,000	Indian ricegrass	15
		Unfavorable	800	Needleandthread	15
				Blue grama	5
				Fourwing saltbush	5
				Sand dropseed	5
				Bottlebrush squirreltail	5
				Winterfat	5
				Galleta	5
				Muttongrass	5
12, 13----------Gilco	Loamy Bottom (Basin Big Sagebrush).	Favorable	2,000	Blue grama	15
		Normal	1,600	Basin big sagebrush	15
		Unfavorable	1,000	Western wheatgrass	10
				Rubber rabbitbrush	10
				Needleandthread	5
				Muttongrass	5
				Nevada bluegrass	5
				Bottlebrush squirreltail	5
				Indian ricegrass	5
				Fourwing saltbush	5
14*:					
Gilco	Loamy Bottom (Basin Big Sagebrush).	Favorable	2,000	Blue grama	15
		Normal	1,600	Basin big sagebrush	15
		Unfavorable	1,000	Western wheatgrass	10
				Rubber rabbitbrush	10
				Needleandthread	5
				Muttongrass	5
				Nevada bluegrass	5
				Bottlebrush squirreltail	5
				Indian ricegrass	5
				Fourwing saltbush	5
Trail----------Semiwet Saline Streambank (Fremont Cottonwood).		Favorable	1,800	Alkali sacaton	35
		Normal	1,300	Coyote willow	15
		Unfavorable	900	Inland saltgrass	10
				Indian ricegrass	5
				Rubber rabbitbrush	5
				Saltcedar	5
				Fremont cottonwood	5

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
15*:					
Green River family	Semiwet Saline Streambank (Fremont Cottonwood).	Favorable	1,800	Alkali sacaton	35
		Normal	1,300	Coyote willow	15
		Unfavorable	900	Inland saltgrass	10
				Indian ricegrass	5
				Fremont cottonwood	5
				Rubber rabbitbrush	5
				Saltcedar	5
Bankard family	Alkali Bottom (Black Greasewood).	Favorable	900	Black greasewood	45
		Normal	800	Alkali sacaton	20
		Unfavorable	700	Seepweed	10
				Bottlebrush squirreltail	5
				Sand dropseed	5
Riverwash.					
16 Kiln	Mountain Shallow Loam (Mountain Big Sagebrush).	Favorable	1,200	Needleandthread	10
		Normal	900	Elk sedge	10
		Unfavorable	600	Muttongrass	10
				Wheatgrass	10
				Mountain big sagebrush	10
				Gambel oak	10
				Brome	5
				Arrowleaf balsamroot	5
				Birchleaf mountainmahogany	5
17 Limeridge	Desert Shallow Sandy Loam (Shadscale).	Favorable	350	Galleta	20
		Normal	250	Indian ricegrass	15
		Unfavorable	100	Shadscale	15
				Sand dropseed	5
				Blackbrush	5
				Mormon tea	5
				Winterfat	5
18*:					
Littlenan	Alkali Fan (Castle Valley Saltbush).	Favorable	300	Castle Valley saltbush	25
		Normal	225	Galleta	20
		Unfavorable	130	Indian ricegrass	10
				Shadscale	10
				Deserttrumpet	5
				Green molly	5
				Torrey Mormon tea	5
Moenkopie	Desert Shallow Sandy Loam (Shadscale).	Favorable	350	Galleta	20
		Normal	250	Indian ricegrass	15
		Unfavorable	100	Shadscale	15
				Mormon tea	5
				Blackbrush	5
				Winterfat	5
				Sand dropseed	5
Recapture	Alkali Flat (Black Greasewood)	Favorable	1,000	Black greasewood	30
		Normal	750	Bottlebrush squirreltail	20
		Unfavorable	500	Alkali sacaton	10
				Galleta	5
				Seepweed	5

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
19*:					
Littlenan	Alkali Fan (Castle Valley Saltbush).	Favorable	300	Castle Valley saltbush	25
		Normal	225	Galleta	20
		Unfavorable	130	Indian ricegrass	10
				Shadscale	10
				Deserttrumpet	5
				Green molly	5
				Torrey Mormon tea	5
Ruinpoint	Semidesert Loam (Wyoming Big Sagebrush).	Favorable	800	Wyoming big sagebrush	20
		Normal	600	Indian ricegrass	15
		Unfavorable	400	Galleta	10
				Bottlebrush squirreltail	10
				Winterfat	10
				Globemallow	5
				Needleandthread	5
				Western wheatgrass	5
				Bluegrama	5
				Douglas rabbitbrush	5
Rizno	Semidesert Shallow Loam (Utah Juniper-Pinyon).	Favorable	250	Mexican cliffrose	20
		Normal	200	Indian ricegrass	15
		Unfavorable	100	Galleta	10
				Bottlebrush squirreltail	10
20*:					
Mido	Semidesert Sand (Fourwing Saltbush).	Favorable	800	Indian ricegrass	20
		Normal	600	Fourwing saltbush	10
		Unfavorable	300	Needleandthread	10
				Galleta	5
				Dropseed	5
				Sandhill muhly	5
				Finebranched eriogonum	5
				Munro globemallow	5
				Sand sagebrush	5
				Mormon tea	5
Riverwash.					
21*:					
Mido	Semidesert Sand (Fourwing Saltbush).	Favorable	800	Indian ricegrass	20
		Normal	600	Needleandthread	10
		Unfavorable	300	Fourwing saltbush	10
				Dropseed	5
				Sandhill muhly	5
				Finebranched eriogonum	5
				Munro globemallow	5
				Sand sagebrush	5
				Galleta	5
Rizno	Semidesert Shallow Sandy Loam (Blackbrush).	Favorable	500	Blackbrush	65
		Normal	350	Galleta	5
		Unfavorable	200	Torrey Mormon tea	5
				Bigelow sagebrush	5
				Indian ricegrass	5

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
22*:					
Mido	Semidesert Sand (Fourwing Saltbush).	Favorable	800	Indian ricegrass	20
		Normal	600	Needleandthread	10
		Unfavorable	300	Fourwing saltbush	10
				Dropseed	5
				Sandhill muhly	5
				Galleta	5
				Mormon tea	5
				Sand sagebrush	5
				Munro globemallow	5
				Finebranched eriogonum	5
Rock outcrop.					
Arches	Semidesert Shallow Sand (Blackbrush).	Favorable	500	Blackbrush	45
		Normal	350	Indian ricegrass	15
		Unfavorable	250	Mormon tea	10
				Munro globemallow	5
23	Semidesert Sandy Loam (Blackbrush).	Favorable	700	Indian ricegrass	20
Milok		Normal	500	Blackbrush	15
		Unfavorable	300	Galleta	15
				Cutler Mormon tea	10
				Sand dropseed	5
				Broom snakeweed	5
				Fourwing saltbush	5
24*:					
Milok	Semidesert Sandy Loam (Blackbrush).	Favorable	700	Indian ricegrass	20
		Normal	500	Blackbrush	15
		Unfavorable	300	Galleta	15
				Cutler Mormon tea	10
				Sand dropseed	5
				Broom snakeweed	5
				Fourwing saltbush	5
Mivida	Semidesert Sandy Loam (Fourwing Saltbush).	Favorable	700	Indian ricegrass	20
		Normal	500	Needleandthread	15
		Unfavorable	300	Galleta	10
				Fourwing saltbush	10
				Sand dropseed	10
				Mormon tea	10
				Winterfat	5
25*:					
Milok	Semidesert Sandy Loam (Blackbrush).	Favorable	700	Indian ricegrass	20
		Normal	500	Blackbrush	15
		Unfavorable	300	Galleta	15
				Cutler Mormon tea	10
				Sand dropseed	5
				Broom snakeweed	5
				Fourwing saltbush	5

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
25*:					
Skos	Semidesert Shallow Sandy Loam (Blackbrush).	Favorable	500	Blackbrush	65
		Normal	350	Galleta	5
		Unfavorable	200	Torrey Mormon tea	5
				Bigelow sagebrush	5
				Indian ricegrass	5
Strych	Semidesert Bouldery Fan (Blackbrush).	Favorable	600	Galleta	15
		Normal	450	Blackbrush	15
		Unfavorable	300	Black grama	10
				Bush muhly	10
				Fourwing saltbush	10
				Indian ricegrass	5
				Desert needlegrass	5
				Mormon tea	5
				Spiny hopsage	5
				Bigelow sagebrush	5
26--Mivida	Semidesert Sandy Loam (Fourwing Saltbush).	Favorable	700	Indian ricegrass	20
		Normal	500	Needleandthread	15
		Unfavorable	300	Galleta	10
				Fourwing saltbush	10
				Sand dropseed	10
				Mormon tea	10
				Winterfat	5
27*:					
Mivida	Semidesert Sandy Loam (Fourwing Saltbush).	Favorable	700	Indian ricegrass	20
		Normal	500	Needleandthread	15
		Unfavorable	300	Galleta	10
				Fourwing saltbush	10
				Sand dropseed	10
				Mormon tea	10
				Winterfat	5
Pastern	Semidesert Shallow Sandy Loam (Blackbrush).	Favorable	500	Blackbrush	65
		Normal	350	Indian ricegrass	5
		Unfavorable	200	Galleta	5
				Torrey Mormon tea	5
				Bigelow sagebrush	5
Rock outcrop.					
28*:					
Moenkopie	Desert Shallow Sandy Loam (Shadscale).	Favorable	350	Galleta	20
		Normal	250	Indian ricegrass	15
		Unfavorable	100	Shadscale	15
				Mormon tea	5
				Blackbrush	5
				Winterfat	5
				Sand dropseed	5
Moenkopie, warm	Desert Shallow Sandy Loam (Blackbrush).	Favorable	350	Blackbrush	55
		Normal	200	Galleta	10
		Unfavorable	100	Mormon tea	5
				Indian ricegrass	5
				Shadscale	5
				Broom snakeweed	5

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
29*:					
Moenkopie	Desert Shallow Sandy Loam (Blackbrush).	Favorable	350	Blackbrush	55
		Normal	200	Galleta	10
		Unfavorable	100	Mormon tea	5
				Indian ricegrass	5
				Shadscale	5
				Broom snakeweed	5
Rock outcrop.					
30, 31 Moffat	Desert Sandy Loam (Blackbrush)	Favorable	500	Blackbrush	25
		Normal	450	Indian ricegrass	20
		Unfavorable	350	Galleta	15
				Cutler Mormon tea	10
				Dropseed	5
				Broom snakeweed	5
32*:					
Myton family	Desert Stony Loam (Shadscale-Bud Sagebrush).	Favorable	600	Galleta	20
		Normal	500	Shadscale	20
		Unfavorable	300	Bud sagebrush	10
				Indian ricegrass	10
				Sand dropseed	5
				Bigelow sagebrush	5
				Torrey Mormon tea	5
Nakai	Desert Sandy Loam (Fourwing Saltbush).	Favorable	550	Indian ricegrass	35
		Normal	450	Galleta	15
		Unfavorable	300	Dropseed	10
				Fourwing saltbush	10
				Globemallow	5
				Mormon tea	5
				Winterfat	5
Redhouse	Desert Loam (Shadscale)	Favorable	550	Shadscale	30
		Normal	400	Galleta	15
		Unfavorable	250	Indian ricegrass	10
				Sand dropseed	5
				Bud sagebrush	5
				Winterfat	5
				Mormon tea	5
				Broom snakeweed	5
33*:					
Myton family	Desert Stony Loam (Shadscale-Bud Sagebrush).	Favorable	600	Galleta	20
		Normal	500	Shadscale	20
		Unfavorable	300	Bud sagebrush	10
				Indian ricegrass	10
				Sand dropseed	5
				Bigelow sagebrush	5
				Torrey Mormon tea	5
Rock outcrop.					

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
34*:					
Myton family	Talus Slope (Blackbrush-Shadscale).	Favorable	300	Blackbrush	15
		Normal	225	Shadscale	15
		Unfavorable	100	Saline wildrye	10
				Galleta	10
				Mormon tea	5
				Indian ricegrass	5
Shalet	Desert Shallow Clay (Shadscale).	Favorable	350	Galleta	25
		Normal	250	Shadscale	25
		Unfavorable	125	Torrey Mormon tea	10
				Bud sagebrush	5
				Castle Valley saltbush	5
				Bottlebrush squirreltail	5
Badland.					
35*:					
Myton family	Talus Slope (Blackbrush-Shadscale).	Favorable	300	Blackbrush	15
		Normal	225	Shadscale	15
		Unfavorable	100	Saline wildrye	10
				Galleta	10
				Mormon tea	5
				Indian ricegrass	5
Skos	Semidesert Shallow Sandy Loam (Blackbrush).	Favorable	500	Blackbrush	65
		Normal	350	Galleta	5
		Unfavorable	200	Torrey Mormon tea	5
				Bigelow sagebrush	5
				Indian ricegrass	5
Rock outcrop.					
36 Nakai	Desert Sandy Loam (Fourwing Saltbush).	Favorable	550	Indian ricegrass	35
		Normal	450	Galleta	15
		Unfavorable	300	Dropseed	10
				Fourwing saltbush	10
				Globemallow	5
				Mormon tea	5
				Winterfat	5
37*:					
Nakai	Desert Sandy Loam (Fourwing Saltbush).	Favorable	550	Indian ricegrass	35
		Normal	450	Galleta	15
		Unfavorable	300	Dropseed	10
				Fourwing saltbush	10
				Globemallow	5
				Mormon tea	5
				Winterfat	5
Moffat	Desert Sandy Loam (Blackbrush)	Favorable	500	Blackbrush	25
		Normal	450	Indian ricegrass	20
		Unfavorable	350	Galleta	15
				Cutler Mormon tea	10
				Spike dropseed	5
				Broom snakeweed	5

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
37*:					
Sheppard	Desert Sand (Sand Sagebrush)	Favorable	700	Indian ricegrass	30
		Normal	400	Sand dropseed	10
		Unfavorable	200	Sand sagebrush	10
				Fourwing saltbush	5
				Mormon tea	5
				Sandhill muhly	5
				Finebranched eriogonum	5
				Globemallow	5
38*	Desert Sandy Loam (Fourwing	Favorable	550	Indian ricegrass	35
Oljeto family	Saltbush).	Normal	450	Galleta	15
		Unfavorable	300	Dropseed	10
				Fourwing saltbush	10
				Globemallow	5
				Mormon tea	5
				Winterfat	5
39*:					
Pastern	Semidesert Shallow Sandy Loam	Favorable	500	Blackbrush	65
	(Blackbrush).	Normal	350	Indian ricegrass	5
		Unfavorable	200	Galleta	5
				Torrey Mormon tea	5
				Bigelow sagebrush	5
Rizno	Semidesert Shallow Sandy	Favorable	400	Blackbrush	35
	Loam (Utah Juniper-Pinyon).	Normal	300	Mormon tea	10
		Unfavorable	200	Indian ricegrass	5
				Galleta	5
Rock outcrop.					
40*:					
Piute	Desert Shallow Sandy Loam	Favorable	350	Blackbrush	55
	(Blackbrush).	Normal	200	Galleta	10
		Unfavorable	100	Indian ricegrass	5
				Shadscale	5
				Mormon tea	5
				Broom snakeweed	5
Sheppard	Desert Sand (Sand Sagebrush)	Favorable	700	Indian ricegrass	30
		Normal	400	Sand dropseed	10
		Unfavorable	200	Sand sagebrush	10
				Globemallow	5
				Mormon tea	5
				Sandhill muhly	5
				Fourwing saltbush	5
				Finebranched eriogonum	5
Rock outcrop.					
41	Alkali Flat (Black Greasewood)	Favorable	1,000	Black greasewood	30
Recapture		Normal	750	Bottlebrush squirreltail	20
		Unfavorable	500	Alkali sacaton	10
				Galleta	5
				Seepweed	5

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
42*:					
Recapture	Alkali Flat (Black Greasewood)	Favorable	1,000	Black greasewood	30
		Normal	750	Bottlebrush squirreltail	20
		Unfavorable	500	Alkali sacaton	10
				Galleta	5
				Seepweed	5
Redbank family	Loamy Bottom (Basin Big Sagebrush).	Favorable	2,000	Basin big sagebrush	15
		Normal	1,600	Blue grama	15
		Unfavorable	1,000	Western wheatgrass	10
				Rubber rabbitbrush	10
				Needleandthread	5
				Muttongrass	5
				Nevada bluegrass	5
				Bottlebrush squirreltail	5
				Indian ricegrass	5
				Fourwing saltbush	5
Bankard family	Alkali Bottom (Black Greasewood).	Favorable	900	Black greasewood	45
		Normal	800	Alkali sacaton	20
		Unfavorable	700	Seepweed	10
				Bottlebrush squirreltail	5
				Sand dropseed	5
43*:					
Redbank family	Loamy Bottom (Basin Big Sagebrush).	Favorable	2,000	Basin big sagebrush	15
		Normal	1,600	Blue grama	15
		Unfavorable	1,000	Western wheatgrass	10
				Rubber rabbitbrush	10
				Needleandthread	5
				Muttongrass	5
				Nevada bluegrass	5
				Bottlebrush squirreltail	5
				Indian ricegrass	5
				Fourwing saltbush	5
Riverwash.					
Green River family	Semiwet Saline Streambank (Fremont Cottonwood).	Favorable	1,800	Alkali sacaton	35
		Normal	1,300	Coyote willow	15
		Unfavorable	900	Inland saltgrass	10
				Indian ricegrass	5
				Fremont cottonwood	5
				Rubber rabbitbrush	5
				Saltcedar	5
44	Desert Loam (Shadscale)	Favorable	550	Shadscale	30
Redhouse		Normal	400	Galleta	15
		Unfavorable	250	Indian ricegrass	10
				Sand dropseed	5
				Bud sagebrush	5
				Winterfat	5
				Mormon tea	5
				Broom snakeweed	5

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
45*:					
Rizno	Upland Shallow Loam (Pinyon-Utah Juniper).	Favorable	600	Bigelow sagebrush	20
		Normal	400	Mormon tea	15
		Unfavorable	100	Mexican cliffrose	5
				Indian ricegrass	5
				Fine Douglas rabbitbrush	5
				Nevada bluegrass	5
				Pricklypear	5
				Galleta	5
Barx	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Wyoming big sagebrush	20
		Normal	1,000	Indian ricegrass	15
		Unfavorable	800	Needleandthread	15
				Fourwing saltbush	5
				Blue grama	5
				Galleta	5
				Sand dropseed	5
				Bottlebrush squirreltail	5
				Winterfat	5
				Muttongrass	5
Yarts	Upland Dissected Slopes (Pinyon-Utah Juniper).	Favorable	450	Roundleaf buffaloberry	60
		Normal	300	Bottlebrush squirreltail	10
		Unfavorable	150	Indian ricegrass	5
				Mormon tea	5
46*:					
Rizno	Upland Shallow Loam (Pinyon-Utah Juniper).	Favorable	600	Bigelow sagebrush	20
		Normal	400	Mormon tea	15
		Unfavorable	100	Mexican cliffrose	5
				Indian ricegrass	5
				Fine Douglas rabbitbrush	5
				Nevada bluegrass	5
				Pricklypear	5
				Galleta	5
Cahona	Upland Loam (Basin Big Sagebrush).	Favorable	1,300	Wyoming big sagebrush	20
		Normal	1,000	Needleandthread	15
		Unfavorable	800	Indian ricegrass	15
				Blue grama	5
				Fourwing saltbush	5
				Sand dropseed	5
				Bottlebrush squirreltail	5
				Winterfat	5
				Galleta	5
				Muttongrass	5
Rock outcrop.					
47*:					
Rizno	Semidesert Shallow Loam (Utah Juniper-Pinyon).	Favorable	250	Mexican cliffrose	20
		Normal	200	Indian ricegrass	15
		Unfavorable	100	Galleta	10
				Bottlebrush squirreltail	10

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
47*:					
Littlenan	Alkali Fan (Castle Valley Saltbush).	Favorable	300	Castle Valley saltbush	25
		Normal	225	Galleta	20
		Unfavorable	130	Shadscale	10
				Indian ricegrass	10
				Deserttrumpet	5
				Green molly	5
				Torrey Mormon tea	5
Bodot	Semidesert Shallow Clay (Utah Juniper-Pinyon).	Favorable	500	Mexican cliffrose	20
		Normal	350	Saline wildrye	15
		Unfavorable	200	Shadscale	15
				Galleta	10
				Indian ricegrass	5
				Bottlebrush squirreltail	5
				Mormon tea	5
48*:					
Rizno	Semidesert Shallow Sandy Loam (Utah Juniper-Pinyon).	Favorable	400	Blackbrush	35
		Normal	300	Mormon tea	10
		Unfavorable	200	Indian ricegrass	5
				Galleta	5
Mido	Semidesert Sand (Fourwing Saltbush).	Favorable	800	Indian ricegrass	20
		Normal	600	Needleandthread	10
		Unfavorable	300	Fourwing saltbush	10
				Mormon tea	5
				Galleta	5
				Dropseed	5
				Sandhill muhly	5
				Sand sagebrush	5
				Munro globemallow	5
				Finebranched eriogonum	5
49*:					
Rizno	Upland Shallow Loam (Pinyon-Utah Juniper).	Favorable	600	Bigelow sagebrush	20
		Normal	400	Mormon tea	15
		Unfavorable	100	Mexican cliffrose	5
				Indian ricegrass	5
				Fine Douglas rabbitbrush	5
				Nevada bluegrass	5
				Pricklypear	5
				Galleta	5
Rock outcrop.					
50*:					
Rizno	Semidesert Shallow Loam (Utah Juniper-Pinyon).	Favorable	250	Mexican cliffrose	20
		Normal	200	Indian ricegrass	15
		Unfavorable	100	Galleta	10
				Bottlebrush squirreltail	10

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
50*:					
Ruinpoint	Semidesert Loam (Wyoming Big Sagebrush).	Favorable	800	Wyoming big sagebrush	20
		Normal	600	Indian ricegrass	15
		Unfavorable	400	Galleta	10
				Bottlebrush squirreltail	10
				Winterfat	10
				Needleandthread	5
				Blue grama	5
				Globemallow	5
				Western wheatgrass	5
				Douglas rabbitbrush	5
Rock outcrop.					
51*:					
Rizno	Semidesert Shallow Sandy Loam (Utah Juniper-Pinyon).	Favorable	400	Blackbrush	35
		Normal	300	Mormon tea	10
		Unfavorable	200	Indian ricegrass	5
				Galleta	5
Skos	Semidesert Shallow Sandy Loam (Blackbrush).	Favorable	500	Blackbrush	65
		Normal	350	Galleta	5
		Unfavorable	200	Torrey Mormon tea	5
				Bigelow sagebrush	5
				Indian ricegrass	5
Rock outcrop.					
52*:					
Rizno	Semidesert Shallow Loam (Utah Juniper-Pinyon).	Favorable	250	Mexican cliffrose	20
		Normal	200	Indian ricegrass	15
		Unfavorable	100	Galleta	10
				Bottlebrush squirreltail	10
Strych	Upland Very Steep Stony Loam (Pinyon-Utah Juniper).	Favorable	550	Saline wildrye	30
		Normal	450	Utah serviceberry	15
		Unfavorable	300	Indian ricegrass	10
				Roundleaf buffaloberry	10
				Birchleaf mountainmahogany	10
				Green Mormon tea	5
				Snowberry	5
53*:					
Robroost family	Desert Very Shallow Gypsum (Torrey Mormon Tea).	Favorable	200	Torrey Mormon tea	20
		Normal	100	Galleta	10
		Unfavorable	50	Hairy coldenia	10
				Shadscale	10
				Rubber rabbitbrush	10
				Indian ricegrass	5
				Badlands wyethia	5
				Corymbed eriogonum	5
				Club eriogonum	5
				Broom snakeweed	5
Gypsum land.					
54*:					
Rock outcrop.					

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
54*:					
Piute	Desert Shallow Sandy Loam (Blackbrush).	Favorable	350	Blackbrush	55
		Normal	200	Galleta	10
		Unfavorable	100	Indian ricegrass	5
				Shadscale	5
				Mormon tea	5
				Broom snakeweed	5
Sheppard	Desert Sand (Sand Sagebrush)	Favorable	700	Indian ricegrass	30
		Normal	400	Sand dropseed	10
		Unfavorable	200	Sand sagebrush	10
				Fourwing saltbush	5
				Sandhill muhly	5
				Finebranched eriogonum	5
				Mormon tea	5
				Globemallow	5
55*:					
Rock outcrop.					
Piute	Semidesert Shallow Sandy Loam (Blackbrush).	Favorable	500	Blackbrush	65
		Normal	350	Galleta	5
		Unfavorable	200	Indian ricegrass	5
				Torrey Mormon tea	5
				Bigelow sagebrush	5
Skos	Semidesert Shallow Sandy Loam (Shadscale).	Favorable	500	Galleta	20
		Normal	300	Shadscale	15
		Unfavorable	100	Bigelow sagebrush	10
				Indian ricegrass	10
				Broom snakeweed	5
				Mormon tea	5
				Needleandthread	5
56*:					
Rock outcrop.					
Strych	Upland Very Steep Stony Loam (Pinyon-Utah Juniper).	Favorable	550	Saline wildrye	30
		Normal	450	Utah serviceberry	15
		Unfavorable	300	Indian ricegrass	10
				Roundleaf buffaloberry	10
				Birchleaf mountainmahogany	10
				Green Mormon tea	5
				Snowberry	5
Rizno	Upland Shallow Loam (Pinyon-Utah Juniper).	Favorable	600	Bigelow sagebrush	20
		Normal	400	Mormon tea	15
		Unfavorable	100	Mexican cliffrose	5
				Indian ricegrass	5
				Fine Douglas rabbitbrush	5
				Nevada bluegrass	5
				Pricklypear	5
				Galleta	5

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
58*:					
Ruinpoint	Semidesert Loam (Wyoming Big Sagebrush).	Favorable	800	Wyoming big sagebrush	20
		Normal	600	Indian ricegrass	15
		Unfavorable	400	Galleta	10
				Bottlebrush squirreltail	10
				Winterfat	10
				Globemallow	5
				Needleandthread	5
				Douglas rabbitbrush	5
Cahona	Semidesert Loam (Wyoming Big Sagebrush).	Favorable	800	Wyoming big sagebrush	20
		Normal	600	Indian ricegrass	15
		Unfavorable	400	Galleta	10
				Winterfat	10
				Bottlebrush squirreltail	10
				Needleandthread	5
				Douglas rabbitbrush	5
				Globemallow	5
59*:					
Shalet	Desert Shallow Clay (Shadscale).	Favorable	350	Galleta	25
		Normal	250	Shadscale	25
		Unfavorable	125	Torrey Mormon tea	10
				Bud sagebrush	5
				Castle Valley saltbush	5
				Bottlebrush squirreltail	5
Moenkopie	Desert Shallow Sandy Loam (Blackbrush).	Favorable	350	Blackbrush	55
		Normal	200	Galleta	10
		Unfavorable	100	Mormon tea	5
				Indian ricegrass	5
				Shadscale	5
				Broom snakeweed	5
Badland.					
60	Upland Shallow Loam (Pinyon-Utah Juniper).	Favorable	600	Bigelow sagebrush	20
Skos		Normal	400	Mormon tea	15
		Unfavorable	100	Galleta	5
				Indian ricegrass	5
				Nevada bluegrass	5
				Fine Douglas rabbitbrush	5
				Mexican cliffrose	5
				Prickly pear	5
61*:					
Skos	Semidesert Shallow Sandy Loam (Shadscale).	Favorable	500	Galleta	20
		Normal	300	Shadscale	15
		Unfavorable	100	Bigelow sagebrush	10
				Indian ricegrass	10
				Broom snakeweed	5
				Mormon tea	5
				Needleandthread	5
Rock outcrop.					

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
62*:					
Skos	Semidesert Shallow Sandy Loam (Blackbrush).	Favorable	500	Blackbrush	65
		Normal	350	Galleta	5
		Unfavorable	200	Torrey Mormon tea	5
				Bigelow sagebrush	5
				Indian ricegrass	5
Rock outcrop.					
63*:					
Strych	Upland Steep Stony Loam (Pinyon-Utah Juniper).	Favorable	600	Saline wildrye	40
		Normal	500	Indian ricegrass	10
		Unfavorable	350	Roundleaf buffaloberry	10
				Galleta	5
				Rockgoldenrod	5
				Green Mormon tea	5
				Utah serviceberry	5
				Birchleaf mountainmahogany	5
Rizno	Upland Shallow Loam (Pinyon-Utah Juniper).	Favorable	600	Bigelow sagebrush	20
		Normal	400	Mormon tea	15
		Unfavorable	100	Mexican cliffrose	5
				Indian ricegrass	5
				Fine Douglas rabbitbrush	5
				Nevada bluegrass	5
				Pricklypear	5
				Galleta	5
Strych, very steep	Upland Very Steep Stony Loam (Pinyon-Utah Juniper).	Favorable	550	Saline wildrye	30
		Normal	450	Utah serviceberry	15
		Unfavorable	300	Indian ricegrass	10
				Roundleaf buffaloberry	10
				Birchleaf mountainmahogany	10
				Green Mormon tea	5
				Snowberry	5
64*:					
Strych	Semidesert Stony Loam (Shadscale).	Favorable	900	Galleta	15
		Normal	700	Indian ricegrass	10
		Unfavorable	500	Fourwing saltbush	10
				Shadscale	10
				Blue grama	5
				Desert needlegrass	5
				Mormon tea	5
Skos	Semidesert Shallow Sandy Loam (Shadscale).	Favorable	500	Galleta	20
		Normal	300	Shadscale	15
		Unfavorable	100	Bigelow sagebrush	10
				Indian ricegrass	10
				Broom snakeweed	5
				Mormon tea	5
				Needleandthread	5
Badland.					

See footnote at end of table.

TABLE 6.--RANGELAND AND WOODLAND UNDERSTORY PRODUCTIVITY AND CHARACTERISTIC VEGETATION--Continued

Soil name and map symbol	Site name	Total production		Characteristic vegetation	Composition
		Kind of year	Dry weight		
			Lb/acre		Pct
65*:					
Strych	Semidesert Stony Loam (Blackbrush).	Favorable	750	Blackbrush	35
		Normal	500	Galleta	20
		Unfavorable	300	Indian ricegrass	15
				Mormon tea	5
Skos	Semidesert Shallow Sandy Loam (Blackbrush).	Favorable	500	Blackbrush	65
		Normal	400	Galleta	5
		Unfavorable	300	Indian ricegrass	5
				Torrey Mormon tea	5
				Bigelow sagebrush	5
Badland.					
66----------Suwanee	Loamy Bottom (Basin Big Sagebrush).	Favorable	2,000	Blue grama	15
		Normal	1,600	Basin big sagebrush	15
		Unfavorable	1,000	Western wheatgrass	10
				Rubber rabbitbrush	10
				Needleandthread	5
				Muttongrass	5
				Nevada bluegrass	5
				Bottlebrush squirreltail	5
				Indian ricegrass	5
				Fourwing saltbush	5
67----------Trail	Semiwet Saline Streambank (Fremont Cottonwood).	Favorable	1,800	Alkali sacaton	35
		Normal	1,300	Coyote willow	15
		Unfavorable	900	Inland saltgrass	10
				Indian ricegrass	5
				Rubber rabbitbrush	5
				Saltcedar	5
				Fremont cottonwood	5
68----------Yarts	Upland Dissected Slopes (Pinyon-Utah Juniper).	Favorable	450	Roundleaf buffaloberry	60
		Normal	300	Bottlebrush squirreltail	10
		Unfavorable	150	Indian ricegrass	5
				Mormon tea	5

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--RECREATIONAL DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Recreational uses			Engineering uses affecting recreational development		
	Camp areas	Picnic areas	Paths and trails	Septic tank absorption fields	Local roads and streets	Dwellings without basements
1*:						
Arches	Severe: too sandy, depth to rock.	Severe: too sandy, depth to rock.	Severe: too sandy.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Rizno	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Mido	Moderate: slope.	Moderate: slope.	Severe: erodes easily.	Severe: poor filter.	Moderate: slope.	Moderate: slope.
2*:						
Badland.						
Rock outcrop.						
3*:						
Bankard family	Severe: flooding.	Slight	Slight	Severe: flooding, poor filter.	Severe: flooding.	Severe: flooding.
Riverwash.						
4*:						
Bankard family	Severe: flooding.	Slight	Slight	Severe: flooding, poor filter.	Severe: flooding.	Severe: flooding.
Sheppard	Moderate: slope.	Moderate: slope.	Slight	Severe: poor filter.	Moderate: slope.	Moderate: slope.
5--- Barx	Slight	Slight	Severe: erodes easily.	Moderate: percs slowly.	Moderate: low strength, frost action.	Moderate: shrink-swell.
6*:						
Barx	Slight	Slight	Severe: erodes easily.	Moderate: percs slowly.	Moderate: low strength, frost action.	Moderate: shrink-swell.
Strych	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.
Skos	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
7*:						
Bluechief	Slight	Slight	Slight	Severe: depth to rock.	Moderate: depth to rock.	Moderate: depth to rock.
Limeridge	Severe: cemented pan.	Severe: cemented pan.	Slight	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Recreational uses			Engineering uses affecting recreational development		
	Camp areas	Picnic areas	Paths and trails	Septic tank absorption fields	Local roads and streets	Dwellings without basements
7*:						
Nakai	Slight	Slight	Slight	Moderate: cemented pan.	Slight	Slight.
8*:						
Bodot	Severe: slope.	Severe: slope.	Severe: large stones, slope, erodes easily.	Severe: depth to rock, percs slowly, slope.	Severe: shrink-swell, low strength, slope.	Severe: shrink-swell, slope.
Strych	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.
Skos	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
9*:						
Bookcliff	Moderate: slope.	Moderate: slope.	Slight	Severe: percs slowly.	Moderate: low strength, slope, frost action.	Moderate: shrink-swell, slope.
Bookcliff, dry	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.
10*:						
Bookcliff	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: percs slowly, slope.	Severe: slope.	Severe: slope.
Skos	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Strych	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
11--- Cahona	Moderate: dusty.	Moderate: dusty.	Severe: erodes easily.	Moderate: percs slowly.	Moderate: low strength.	Slight.
12, 13--- Gilco	Severe: flooding.	Slight	Slight	Slight	Moderate: flooding.	Severe: flooding.
14*:						
Gilco	Severe: flooding.	Slight	Slight	Slight	Moderate: flooding.	Severe: flooding.
Trail	Severe: flooding.	Slight	Slight	Severe: poor filter.	Moderate: flooding.	Severe: flooding.
15*:						
Green River family	Severe: flooding, excess salts.	Severe: excess salts.	Moderate: wetness.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Recreational uses			Engineering uses affecting recreational development		
	Camp areas	Picnic areas	Paths and trails	Septic tank absorption fields	Local roads and streets	Dwellings without basements
15*:						
Bankard family	Severe: flooding.	Slight	Slight	Severe: flooding, poor filter.	Severe: flooding.	Severe: flooding.
Riverwash.						
16--Kiln	Severe: depth to rock.	Severe: depth to rock.	Severe: erodes easily.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
17--Limeridge	Severe: cemented pan.	Severe: cemented pan.	Moderate: dusty.	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
18*:						
Littlenan	Moderate: slope, small stones.	Moderate: slope, small stones.	Slight	Severe: depth to rock, percs slowly.	Severe: shrink-swell, low strength.	Severe: shrink-swell.
Moenkopie	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Recapture	Slight	Slight	Slight	Moderate: percs slowly.	Moderate: low strength.	Slight.
19*:						
Littlenan	Moderate: slope, small stones.	Moderate: slope, small stones.	Slight	Severe: depth to rock, percs slowly.	Severe: shrink-swell, low strength.	Severe: shrink-swell.
Ruinpoint	Moderate: dusty.	Moderate: dusty.	Moderate: dusty.	Moderate: percs slowly.	Severe: low strength.	Moderate: shrink-swell.
Rizno	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
20*:						
Mido	Moderate: slope.	Moderate: slope.	Severe: erodes easily.	Severe: poor filter.	Moderate: slope.	Moderate: slope.
Riverwash.						
21*:						
Mido	Moderate: slope.	Moderate: slope.	Severe: erodes easily.	Severe: poor filter.	Moderate: slope.	Moderate: slope.
Rizno	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
22*:						
Mido	Moderate: slope.	Moderate: slope.	Severe: erodes easily.	Severe: poor filter.	Moderate: slope.	Moderate: slope.
Rock outcrop.						
Arches	Severe: too sandy, depth to rock.	Severe: too sandy, depth to rock.	Severe: too sandy.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Recreational uses			Engineering uses affecting recreational development		
	Camp areas	Picnic areas	Paths and trails	Septic tank absorption fields	Local roads and streets	Dwellings without basements
23---- Milok	Slight	Slight	Slight	Slight	Slight	Slight.
24*:						
Milok----	Slight	Slight	Slight	Slight	Slight	Slight.
Mivida----	Slight	Slight	Slight	Slight	Slight	Slight.
25*:						
Milok----	Slight	Slight	Slight	Slight	Slight	Slight.
Skos----	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope, dusty.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Strych----	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.
26---- Mivida	Slight	Slight	Slight	Slight	Slight	Slight.
27*:						
Mivida----	Slight	Slight	Slight	Slight	Slight	Slight.
Pastern----	Severe: cemented pan.	Severe: cemented pan.	Slight	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
Rock outcrop.						
28*:						
Moenkopie----	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Moenkopie, warm----	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
29*:						
Moenkopie----	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Rock outcrop.						
30, 31---- Moffat	Slight	Slight	Slight	Slight	Slight	Slight.
32*:						
Myton family----	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Nakai----	Slight	Slight	Slight	Severe: poor filter.	Slight	Slight.
Redhouse----	Slight	Slight	Slight	Moderate: percs slowly.	Moderate: shrink-swell.	Moderate: shrink-swell.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Recreational uses			Engineering uses affecting recreational development		
	Camp areas	Picnic areas	Paths and trails	Septic tank absorption fields	Local roads and streets	Dwellings without basements
33*:						
Myton family	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rock outcrop.						
34*:						
Myton family	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Shalet	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Moderate: depth to rock, slope.	Moderate: slope, depth to rock.
Badland.						
35*:						
Myton family	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope.	Severe: slope.	Severe: slope.	Severe: slope.
Skos	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Rock outcrop.						
36--- Nakai	Slight	Slight	Slight	Moderate: cemented pan.	Slight	Slight.
37*:						
Nakai	Slight	Slight	Slight	Severe: poor filter.	Slight	Slight.
Moffat	Slight	Slight	Slight	Slight	Slight	Slight.
Sheppard	Moderate: slope.	Moderate: slope.	Slight	Severe: poor filter.	Moderate: slope.	Moderate: slope.
38*--- Oljeto family	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope.	Severe: poor filter, slope.	Severe: slope.	Severe: slope.
39*:						
Pastern	Severe: cemented pan.	Severe: cemented pan.	Slight	Severe: cemented pan.	Severe: cemented pan.	Severe: cemented pan.
Rizno	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Rock outcrop.						

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Recreational uses			Engineering uses affecting recreational development		
	Camp areas	Picnic areas	Paths and trails	Septic tank absorption fields	Local roads and streets	Dwellings without basements
40*:						
Piute	Severe: depth to rock.	Severe: depth to rock.	Severe: erodes easily.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Sheppard	Moderate: slope.	Moderate: slope.	Slight	Severe: poor filter.	Moderate: slope.	Moderate: slope.
Rock outcrop.						
41--- Recapture	Severe: flooding.	Slight	Slight	Moderate: percs slowly.	Moderate: flooding, low strength.	Severe: flooding.
42*:						
Recapture	Slight	Slight	Slight	Moderate: percs slowly.	Moderate: low strength.	Slight.
Redbank family	Severe: flooding.	Slight	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.
Bankard family	Severe: flooding.	Slight	Slight	Severe: flooding, poor filter.	Severe: flooding.	Severe: flooding.
43*:						
Redbank family	Severe: flooding.	Slight	Slight	Severe: flooding.	Severe: flooding.	Severe: flooding.
Riverwash.						
Green River family	Severe: flooding, excess salts.	Severe: excess salts.	Moderate: wetness.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.
44--- Redhouse	Slight	Slight	Slight	Moderate: percs slowly.	Moderate: shrink-swell.	Moderate: shrink-swell.
45*:						
Rizno	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Barx	Slight	Slight	Severe: erodes easily.	Moderate: percs slowly.	Moderate: low strength, frost action.	Moderate: shrink-swell.
Yarts	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.	Severe: slope.	Severe: slope.
46*:						
Rizno	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Cahona	Moderate: dusty.	Moderate: dusty.	Severe: erodes easily.	Moderate: percs slowly.	Moderate: low strength.	Slight.
Rock outcrop.						

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Recreational uses			Engineering uses affecting recreational development		
	Camp areas	Picnic areas	Paths and trails	Septic tank absorption fields	Local roads and streets	Dwellings without basements
47*:						
Rizno	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Littlenan	Moderate: slope, small stones.	Moderate: slope, small stones.	Slight	Severe: depth to rock, percs slowly.	Severe: shrink-swell, low strength.	Severe: shrink-swell.
Bodot	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope, erodes easily.	Severe: depth to rock, percs slowly, slope.	Severe: shrink-swell, low strength, slope.	Severe: shrink-swell, slope.
48*:						
Rizno	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Mido	Moderate: slope.	Moderate: slope.	Severe: erodes easily.	Severe: poor filter.	Moderate: slope.	Moderate: slope.
49*:						
Rizno	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Rock outcrop.						
50*:						
Rizno	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Ruinpoint	Moderate: dusty.	Moderate: dusty.	Moderate: dusty.	Moderate: percs slowly.	Severe: low strength.	Moderate: shrink-swell.
Rock outcrop.						
51*:						
Rizno	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Skos	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope, dusty.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Rock outcrop.						
52*:						
Rizno	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Strych	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
53*:						
Robroost family	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.	Severe: slope.	Severe: slope.
Gypsum land.						

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Recreational uses			Engineering uses affecting recreational development		
	Camp areas	Picnic areas	Paths and trails	Septic tank absorption fields	Local roads and streets	Dwellings without basements
54*:						
Rock outcrop.						
Piute	Severe: depth to rock.	Severe: depth to rock.	Severe: erodes easily.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Sheppard	Moderate: slope.	Moderate: slope.	Slight	Severe: poor filter.	Moderate: slope.	Moderate: slope.
55*:						
Rock outcrop.						
Piute	Severe: depth to rock.	Severe: depth to rock.	Severe: erodes easily.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Skos	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
56*:						
Rock outcrop.						
Strych	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rizno	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
57*:						
Rubble land.						
Rock outcrop.						
58*:						
Ruinpoint	Moderate: dusty.	Moderate: dusty.	Moderate: dusty.	Moderate: percs slowly.	Severe: low strength.	Moderate: shrink-swell.
Cahona	Moderate: dusty.	Moderate: dusty.	Severe: erodes easily.	Moderate: percs slowly.	Moderate: low strength.	Slight.
59*:						
Shalet	Severe: depth to rock.	Severe: depth to rock.	Slight	Severe: depth to rock.	Moderate: depth to rock, slope.	Moderate: slope, depth to rock.
Moenkopie	Severe: depth to rock.	Severe: depth to rock.	Severe: small stones.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Badland.						
60 Skos	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Recreational uses			Engineering uses affecting recreational development		
	Camp areas	Picnic areas	Paths and trails	Septic tank absorption fields	Local roads and streets	Dwellings without basements
61*:						
Skos	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Rock outcrop.						
62*:						
Skos	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope, dusty.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Rock outcrop.						
63*:						
Strych	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.
Rizno	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Moderate: slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Strych, very steep-	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
64*:						
Strych	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.
Skos	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Badland.						
65*:						
Strych	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.	Severe: slope, large stones.	Severe: slope, large stones.	Severe: slope, large stones.
Skos	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: slope, depth to rock.
Badland.						
66--- Suwanee	Severe: flooding.	Moderate: dusty.	Moderate: dusty.	Severe: percs slowly.	Moderate: shrink-swell, flooding, low strength.	Severe: flooding.
67--- Trail	Severe: flooding.	Slight---	Slight---	Severe: poor filter.	Moderate: flooding.	Severe: flooding.
68--- Yarts	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.	Severe: slope.	Severe: slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--CONSTRUCTION MATERIALS

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
1*:				
Arches	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, too sandy.
Rizno	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Mido	Good	Probable	Improbable: too sandy.	Poor: thin layer.
2*:				
Badland.				
Rock outcrop.				
3*:				
Bankard family	Good	Probable	Probable	Poor: small stones.
Riverwash.				
4*:				
Bankard family	Good	Probable	Probable	Poor: small stones.
Sheppard	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones, slope.
5 Barx	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Good.
6*:				
Barx	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Good.
Strych	Poor: large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Skos	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.

See footnote at end of table.

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
7*:				
Bluechief	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: depth to rock, thin layer, small stones.
Limeridge	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
Nakai	Fair: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
8*:				
Bodot	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, large stones, slope.
Strych	Poor: large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Skos	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
9*:				
Bookcliff	Fair: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Bookcliff, dry	Fair: area reclaim, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
10*:				
Bookcliff	Fair: area reclaim, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Skos	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Strych	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
11--Cahona	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
12, 13--Gilco	Good	Improbable: excess fines.	Improbable: excess fines.	Good.

See footnote at end of table.

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
14*:				
Gilco	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
Trail	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
15*:				
Green River family	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salts.
Bankard family	Good	Probable	Probable	Poor: small stones.
Riverwash.				
16--- Kiln	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
17--- Limeridge	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
18*:				
Littlenan	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
Moenkopie	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Recapture	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, excess salts.
19*:				
Littlenan	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
Ruinpoint	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Rizno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
20*:				
Mido	Good	Probable	Improbable: too sandy.	Poor: thin layer.
Riverwash.				
21*:				
Mido	Good	Probable	Improbable: too sandy.	Poor: thin layer.

See footnote at end of table.

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
21*:				
Rizno	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
22*:				
Mido	Good	Probable	Improbable: too sandy.	Poor: thin layer.
Rock outcrop.				
Arches	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, too sandy.
23 Milok	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim.
24*:				
Milok	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim.
Mivida	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
25*:				
Milok	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim.
Skos	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Strych	Poor: large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
26 Mivida	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
27*:				
Mivida	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Pastern	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
Rock outcrop.				
28*:				
Moenkopie	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Moenkopie, warm	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.

See footnote at end of table.

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
29*:				
Moenkopie	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Rock outcrop.				
30, 31--- Moffat	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
32*:				
Myton family	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Nakai	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
Redhouse	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
33*:				
Myton family	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Rock outcrop.				
34*:				
Myton family	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Shalet	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Badland.				
35*:				
Myton family	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Skos	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Rock outcrop.				
36--- Nakai	Fair: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
37*:				
Nakai	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.

See footnote at end of table.

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
37*:				
Moffat	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Sheppard	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones, slope.
38* Oljeto family	Poor: slope.	Probable	Probable	Poor: too sandy, small stones, area reclaim.
39*:				
Pastern	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Poor: cemented pan, small stones.
Rizno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Rock outcrop.				
40*:				
Piute	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock.
Sheppard	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones, slope.
Rock outcrop.				
41 Recapture	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, excess salts.
42*:				
Recapture	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, excess salts.
Redbank family	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Bankard family	Good	Probable	Probable	Poor: small stones.
43*:				
Redbank family	Fair: large stones.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Riverwash.				

See footnote at end of table.

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
43*:				
Green River family	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salts.
44 Redhouse	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
45*:				
Rizno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Barx	Fair: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Good.
Yarts	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
46*:				
Rizno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Cahona	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Rock outcrop.				
47*:				
Rizno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Littlenan	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
Bodot	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, large stones, slope.
48*:				
Rizno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Mido	Good	Probable	Improbable: too sandy.	Poor: thin layer.
49*:				
Rizno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Rock outcrop.				

See footnote at end of table.

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
50*:				
Rizno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Ruinpoint	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Rock outcrop.				
51*:				
Rizno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Skos	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Rock outcrop.				
52*:				
Rizno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Strych	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
53*:				
Robroost family	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Gypsum land.				
54*:				
Rock outcrop.				
Piute	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock.
Sheppard	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones, slope.
55*:				
Rock outcrop.				
Piute	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock.
Skos	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.

See footnote at end of table.

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
56*:				
Rock outcrop.				
Strych	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Rizno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
57*:				
Rubble land.				
Rock outcrop.				
58*:				
Ruinpoint	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Cahona	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
59*:				
Shalet	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Moenkopie	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones.
Badland.				
60--- Skos	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
61*, 62*:				
Skos	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Rock outcrop.				
63*:				
Strych	Poor: large stones, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Rizno	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.

See footnote at end of table.

TABLE 8.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
63*:				
Strych, very steep	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
64*, 65*:				
Strych	Poor: large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: large stones, area reclaim, slope.
Skos	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, small stones, slope.
Badland.				
66--- Suwanee	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
67--- Trail	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
68--- Yarts	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
1*:											
Arches	0-4	Fine sand	SM	A-2	0	100	100	65-85	20-30	---	NP
	4-18	Fine sand	SM	A-2	0	100	100	65-85	20-35	---	NP
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rizno	0-3	Fine sandy loam	SM, SM-SC	A-4, A-2	0-10	95-100	90-100	65-85	30-50	20-30	NP-10
	3-18	Fine sandy loam, sandy loam.	SM, SM-SC	A-4, A-2	0-10	95-100	90-100	65-85	30-50	20-30	NP-10
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Mido	0-10	Loamy fine sand	SM	A-2, A-4	0	100	100	75-95	30-50	---	NP
	10-60	Loamy fine sand, fine sand, loamy sand.	SM, SP-SM	A-2, A-3	0	100	100	70-95	5-35	---	NP
2*:											
Badland.											
Rock outcrop.											
3*:											
Bankard family	0-12	Fine sandy loam	SM, ML	A-4	0-10	85-100	80-100	70-95	45-60	15-25	NP-10
	12-60	Stratified gravelly loamy fine sand to fine sandy loam.	SP, SM	A-1, A-2, A-4	0-10	65-100	60-100	45-85	15-30	---	NP
Riverwash.											
4*:											
Bankard family	0-6	Fine sandy loam	SM, ML	A-4	0-10	85-100	80-100	70-95	45-60	15-25	NP-10
	6-60	Stratified gravelly loamy fine sand to fine sandy loam.	SP, SM	A-1, A-2, A-4	0-10	65-100	60-100	45-85	15-30	---	NP
Sheppard	0-6	Loamy fine sand	SM	A-2	0	100	100	65-80	25-35	---	NP
	6-60	Loamy fine sand, fine sand, loamy sand.	SM	A-2	0	100	90-100	70-80	15-25	---	NP
5	0-3	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	90-100	50-60	15-25	NP-10
Barx	3-9	Fine sandy loam	SM, SM-SC	A-4	0	100	100	90-100	40-50	15-25	NP-10
	9-36	Sandy clay loam	CL	A-6	0	100	100	90-100	50-70	25-40	10-20
	36-60	Sandy clay loam	CL	A-6	0	100	100	90-100	50-60	25-40	10-20
6*:											
Barx	0-9	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	90-100	50-60	15-25	NP-10
	9-32	Sandy clay loam	CL	A-6	0	100	100	90-100	50-70	25-40	10-20
	32-60	Sandy clay loam	CL	A-6	0	100	100	90-100	50-60	25-40	10-20

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
6*:											
Strych	0-8	Extremely bouldery fine sandy loam.	SM-SC, SM	A-2, A-4	40-80	65-90	60-80	50-75	25-50	20-30	NP-10
	8-60	Very stony fine sandy loam, extremely stony fine sandy loam, very cobbly fine sandy loam.	SM-SC, GM-GC	A-2, A-4	30-50	45-75	40-70	30-70	20-45	20-30	5-10
Skos	0-2	Channery fine sandy loam.	GM-GC, SM-SC	A-2	5-10	55-75	55-70	40-55	20-35	20-25	5-10
	2-13	Very channery sandy clay loam, very channery clay loam, very gravelly clay loam.	GC	A-2, A-6	5-15	30-60	30-55	25-50	15-45	30-40	10-20
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
7*:											
Bluechief	0-2	Fine sandy loam	SM	A-4	0	100	100	65-80	35-50	---	NP
	2-15	Fine sandy loam, loam.	SM, ML	A-4	0	100	100	70-85	40-55	20-25	NP-5
	15-26	Fine sandy loam	SM-SC, SM, CL-ML, ML	A-4	0-5	90-100	85-100	75-85	45-55	20-30	NP-10
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Limeridge	0-3	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-4, A-2	0	85-100	75-100	70-95	30-55	15-25	NP-10
	3-19	Fine sandy loam, gravelly fine sandy loam.	SM-SC	A-2, A-4	0-10	75-90	60-85	50-75	20-45	20-30	5-10
	19	Cemented	---	---	---	---	---	---	---	---	---
Nakai	0-2	Fine sandy loam	SM	A-4	0	100	100	70-85	40-50	15-25	NP-5
	2-28	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	80-100	65-85	40-50	15-25	NP-10
	28-44	Fine sandy loam	SM, SM-SC	A-4	0	85-100	80-100	55-85	35-50	15-25	NP-10
	44	Cemented	---	---	---	---	---	---	---	---	---
8*:											
Bodot	0-3	Very stony sandy clay loam.	GM-GC, GC, SC, SM-SC	A-2	40-70	50-70	45-65	20-45	15-35	25-35	5-15
	3-29	Clay loam, silty clay loam, sandy clay loam.	CL	A-6, A-7	0-20	95-100	90-100	60-90	55-85	35-45	15-25
	29-38	Clay, silty clay, clay loam.	CH, CL	A-7	0	100	100	70-100	65-90	40-60	20-40
	38	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
8*:											
Strych	0-8	Extremely bouldery fine sandy loam.	SM-SC, SM	A-2, A-4	40-80	65-90	60-80	50-75	25-50	20-30	NP-10
	8-60	Very stony fine sandy loam, extremely stony fine sandy loam, very cobbly fine sandy loam.	SM-SC, GM-GC	A-2, A-4	30-50	45-75	40-70	30-70	20-45	20-30	5-10
Skos	0-2	Channery fine sandy loam.	GM-GC, SM-SC	A-2	5-10	55-75	55-70	40-55	20-35	20-25	5-10
	2-13	Very channery sandy clay loam, very channery clay loam, very gravelly clay loam.	GC	A-2, A-6	5-15	30-60	30-55	25-50	15-45	30-40	10-20
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
9*:											
Bookcliff	0-8	Sandy loam	SM-SC, SM, SC	A-4, A-2, A-6	0-5	100	100	80-90	30-50	20-35	NP-15
	8-47	Clay loam, sandy clay loam, loam.	CL, CL-ML	A-4, A-6	0	100	100	70-95	50-70	25-35	5-15
	47	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Bookcliff, dry	0-14	Loam	CL-ML, ML	A-4	0-5	95-100	90-100	60-95	55-70	20-30	NP-10
	14-44	Clay loam, sandy clay loam, loam.	CL, CL-ML	A-4, A-6	0	100	100	70-95	50-70	25-35	5-15
	44	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
10*:											
Bookcliff	0-14	Loam	CL-ML, ML	A-4	0-5	95-100	90-100	60-95	55-70	20-30	NP-10
	14-44	Clay loam, sandy clay loam, loam.	CL, CL-ML	A-4, A-6	0	100	100	70-95	50-70	25-35	5-15
	44	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Skos	0-2	Channery fine sandy loam.	GM-GC, SM-SC	A-2	5-10	55-75	55-70	40-55	20-35	20-25	5-10
	2-13	Very channery sandy clay loam, very channery clay loam, very gravelly clay loam.	GC	A-2, A-6	5-15	30-60	30-55	25-50	15-45	30-40	10-20
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
10*:											
Strych	0-12	Very stony fine sandy loam.	SM-SC, GM-GC	A-2, A-4	30-50	45-75	40-70	30-70	20-45	20-30	NP-10
	12-60	Very stony fine sandy loam, extremely stony fine sandy loam, very cobbly fine sandy loam.	SM-SC, GM-GC	A-2, A-4	30-50	45-75	40-70	30-70	20-45	20-30	5-10
11	0-3	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	95-100	50-80	10-20	NP-10
Cahona	3-27	Sandy clay loam, silty clay loam, clay loam.	CL	A-6	0	100	100	95-100	80-95	30-40	10-20
	27-60	Very fine sandy loam, loam, fine sandy loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	50-95	20-35	5-15
12	0-11	Silt loam	CL-ML	A-4	0	100	100	90-100	70-90	25-35	5-10
Gilco	11-45	Stratified fine sandy loam to very fine sandy loam.	CL-ML, ML	A-4	0	100	100	70-90	40-60	15-25	NP-10
	45-60	Loamy fine sand	SM	A-2	0	100	100	50-75	15-30	15-20	NP-5
13	0-15	Silty clay loam	CL	A-6	0	100	100	95-100	85-95	30-40	10-20
Gilco	15-60	Stratified fine sandy loam to very fine sandy loam.	CL-ML, ML	A-4	0	100	100	70-90	40-60	15-25	NP-10
14*:											
Gilco	0-7	Fine sandy loam	SM-SC	A-4	0	100	100	70-85	35-50	20-30	5-10
	7-47	Stratified fine sandy loam to very fine sandy loam.	CL-ML, ML	A-4	0	100	100	70-90	40-60	15-25	NP-10
	47-60	Loamy fine sand	SM	A-2	0	100	100	50-75	15-30	15-20	NP-5
Trail	0-8	Fine sandy loam	SM-SC	A-4	0	100	100	70-85	35-50	20-25	NP-5
	8-60	Stratified sand to fine sandy loam.	SM	A-2, A-4	0	100	100	55-80	10-45	15-25	NP-5
15*:											
Green River family	0-13	Coarse sandy loam	SM	A-4	0	100	100	60-70	35-50	---	NP
	13-21	Fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	100	100	70-90	40-65	20-25	5-10
	21-60	Loam, fine sandy loam.	CL-ML, SM-SC	A-4	0	100	100	85-95	40-75	20-25	5-10
Bankard family	0-12	Fine sandy loam	SM, ML	A-4	0-10	85-100	80-100	70-95	45-60	15-25	NP-10
	12-60	Stratified gravelly loamy fine sand to fine sandy loam.	SP, SM	A-1, A-2, A-4	0-10	65-100	60-100	45-85	15-30	---	NP
Riverwash.											

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
16---------- Kiln	0-9	Loam----------	SM-SC, CL-ML	A-4	0	85-100	80-100	60-90	40-75	20-30	5-10
	9-18	Gravelly clay loam.	GC, SC, CL	A-6	0	60-80	50-75	45-70	35-60	30-40	10-20
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
17---------- Limeridge	0-1	Gravelly very fine sandy loam.	SM, SM-SC	A-2, A-4	0	60-85	50-75	45-70	25-50	15-25	NP-10
	1-8	Fine sandy loam, gravelly fine sandy loam.	SM-SC	A-2, A-4	0-10	75-90	60-85	50-75	20-45	20-30	5-10
	8-16	Gravelly fine sandy loam, gravelly sandy clay loam.	SC, SM-SC	A-2, A-4	10-15	75-90	60-85	50-80	20-60	25-40	5-15
	16	Cemented---------	---	---	---	---	---	---	---	---	---
18*:											
Littlenan-------	0-3	Gravelly loam----	SM-SC, SC, CL-ML	A-4, A-6, A-7	0-10	60-85	50-75	45-75	35-65	25-45	5-20
	3-29	Silty clay loam, silty clay, clay loam.	CL	A-7	0-10	90-100	85-100	75-100	65-95	40-50	15-30
	29	Weathered bedrock	---	---	---	---	---	---	---	---	---
Moenkopie-------	0-2	Very gravelly fine sandy loam.	GM-GC, SM	A-1, A-2	0-10	35-50	30-45	15-30	10-15	15-25	NP-10
	2-6	Sandy loam, fine sandy loam, loam.	SM-SC, SM	A-2, A-4	0-5	80-100	75-100	45-70	25-45	15-25	NP-10
	6	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Recapture-------	0-16	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0	95-100	90-100	70-85	40-55	20-30	NP-10
	16-42	Loam, clay loam, sandy clay loam.	SC, CL	A-6	0	95-100	90-100	70-90	40-80	30-40	10-20
	42-60	Silt loam, very fine sandy loam, loam.	SM-SC, CL-ML, ML, SM	A-4	0	95-100	90-100	75-100	45-90	20-30	NP-10
19*:											
Littlenan-------	0-3	Gravelly loam----	SM-SC, SC, CL-ML	A-4, A-6, A-7	0-10	60-85	50-75	45-75	35-65	25-45	5-20
	3-29	Silty clay loam, silty clay, clay loam.	CL	A-7	0-10	90-100	85-100	75-100	65-95	40-50	15-30
	29	Weathered bedrock	---	---	---	---	---	---	---	---	---
Ruinpoint-------	0-2	Very fine sandy loam.	CL-ML, ML	A-4	0	100	100	70-100	50-65	20-30	NP-10
	2-13	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	80-95	30-40	10-20
	13-60	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	80-95	30-40	10-20

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
19*:											
Rizno	0-3	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	80-100	75-100	55-85	35-55	15-25	NP-10
	3-13	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	95-100	90-100	65-85	35-55	15-30	NP-10
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
20*:											
Mido	0-10	Loamy fine sand	SM	A-2, A-4	0	100	100	75-95	30-50	---	NP
	10-60	Loamy fine sand, fine sand, loamy sand.	SM, SP-SM	A-2, A-3	0	100	100	70-95	5-35	---	NP
Riverwash.											
21*:											
Mido	0-10	Loamy fine sand	SM	A-2, A-4	0	100	100	75-95	30-50	---	NP
	10-60	Loamy fine sand, fine sand, loamy sand.	SM, SP-SM	A-2, A-3	0	100	100	70-95	5-35	---	NP
Rizno	0-3	Fine sandy loam	SM, SM-SC	A-4, A-2	0-10	95-100	90-100	65-85	30-50	20-30	NP-10
	3-18	Fine sandy loam, sandy loam.	SM, SM-SC	A-4, A-2	0-10	95-100	90-100	65-85	30-50	20-30	NP-10
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
22*:											
Mido	0-10	Loamy fine sand	SM	A-2, A-4	0	100	100	75-95	30-50	---	NP
	10-60	Loamy fine sand, fine sand, loamy sand.	SM, SP-SM	A-2, A-3	0	100	100	70-95	5-35	---	NP
Rock outcrop.											
Arches	0-4	Fine sand	SM	A-2	0	100	100	65-85	20-30	---	NP
	4-18	Fine sand	SM	A-2	0	100	100	65-85	20-35	---	NP
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
23	0-2	Fine sandy loam	SM-SC	A-2, A-4	0	100	100	60-85	30-50	20-30	5-10
Milok	2-8	Fine sandy loam	SM-SC	A-4	0	100	100	70-85	40-50	20-30	5-10
	8-60	Fine sandy loam	CL-ML	A-4	0	100	100	85-95	60-70	20-30	5-10
24*:											
Milok	0-2	Fine sandy loam	SM-SC	A-2, A-4	0	100	100	60-85	30-50	20-30	5-10
	2-8	Fine sandy loam	SM-SC	A-4	0	100	100	70-85	40-50	20-30	5-10
	8-60	Fine sandy loam	CL-ML	A-4	0	100	100	85-95	60-70	20-30	5-10
Mivida	0-7	Fine sandy loam	SM, SM-SC, CL-ML, ML	A-2, A-4	0	90-100	90-100	55-85	30-55	20-30	NP-10
	7-60	Fine sandy loam	SM, SM-SC, CL-ML, ML	A-2, A-4	0	90-100	90-100	55-85	30-55	20-30	NP-10
25*:											
Milok	0-2	Fine sandy loam	SM-SC	A-2, A-4	0	100	100	60-85	30-50	20-30	5-10
	2-8	Fine sandy loam	SM-SC	A-4	0	100	100	70-85	40-50	20-30	5-10
	8-60	Fine sandy loam	CL-ML	A-4	0	100	100	85-95	60-70	20-30	5-10

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
25*:											
Skos	0-1	Channery loam	GM-GC, GC, SM-SC, SC	A-4, A-6, A-2	5-10	55-75	55-70	45-60	30-50	20-30	5-15
	1-6	Very channery sandy clay loam, very channery clay loam, very gravelly clay loam.	GC	A-2, A-6	5-15	30-60	30-55	25-50	15-45	30-40	10-20
	6	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Strych	0-2	Extremely bouldery sandy loam.	GM, SM	A-1, A-2, A-4	45-70	65-90	60-85	35-75	15-50	20-35	NP-10
	2-60	Very cobbly fine sandy loam, very gravelly loam, very gravelly fine sandy loam.	GM, SM, ML	A-1, A-2, A-4	30-70	55-90	50-85	45-80	15-65	20-35	NP-10
26 Mivida	0-7	Fine sandy loam	SM, SM-SC, CL-ML, ML	A-2, A-4	0	90-100	90-100	55-85	30-55	20-30	NP-10
	7-60	Fine sandy loam	SM, SM-SC, CL-ML, ML	A-2, A-4	0	90-100	90-100	55-85	30-55	20-30	NP-10
27*:											
Mivida	0-7	Fine sandy loam	SM, SM-SC, CL-ML, ML	A-2, A-4	0	90-100	90-100	55-85	30-55	20-30	NP-10
	7-60	Fine sandy loam	SM, SM-SC, CL-ML, ML	A-2, A-4	0	90-100	90-100	55-85	30-55	20-30	NP-10
Pastern	0-2	Fine sandy loam	SM, SM-SC	A-2, A-4	0	100	95-100	70-85	30-45	20-30	NP-10
	2-13	Fine sandy loam, gravelly fine sandy loam, gravelly loam.	SM, SM-SC	A-2, A-4	0-10	75-100	70-100	50-85	20-50	20-30	NP-10
	13	Indurated	---	---	---	---	---	---	---	---	---
Rock outcrop.											
28*:											
Moenkopie	0-2	Very gravelly fine sandy loam.	GM-GC, SM	A-1, A-2	0-10	35-50	30-45	15-30	10-15	15-25	NP-10
	2-6	Sandy loam, fine sandy loam, loam.	SM-SC, SM	A-2, A-4	0-5	80-100	75-100	45-70	25-45	15-25	NP-10
	6	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Moenkopie, warm-	0-1	Very gravelly fine sandy loam.	GM-GC, SM	A-1, A-2	0-10	35-50	30-45	15-30	10-15	15-25	NP-10
	1-9	Sandy loam, fine sandy loam, loam.	SM-SC, SM	A-2, A-4	0-5	80-100	75-100	45-70	25-45	15-25	NP-10
	9	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
29*:											
Moenkopie	0-1	Very gravelly fine sandy loam.	GM-GC, SM	A-1, A-2	0-10	35-50	30-45	15-30	10-15	15-25	NP-10
	1-9	Sandy loam, fine sandy loam, loam.	SM-SC, SM	A-2, A-4	0-5	80-100	75-100	45-70	25-45	15-25	NP-10
	9	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
30	0-10	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	70-85	35-55	---	NP
Moffat	10-60	Fine sandy loam, sandy loam.	SM, SM-SC	A-4, A-2	0	95-100	90-100	65-85	25-45	20-30	NP-10
31	0-19	Loamy fine sand	SM	A-4, A-2	0	90-100	85-100	65-90	25-40	---	NP
Moffat	19-60	Fine sandy loam, sandy loam.	SM, SM-SC	A-4, A-2	0	95-100	90-100	65-85	25-45	20-30	NP-10
32*:											
Myton family	0-6	Very gravelly sandy loam.	GM, SM	A-1	0-10	40-60	35-55	25-35	10-20	20-25	NP-5
	6-60	Very cobbly sandy loam, very gravelly sandy loam.	GM, SM	A-1	20-40	50-75	40-70	25-45	15-25	20-25	NP-5
Nakai	0-2	Loamy fine sand	SM	A-2	0	100	100	75-100	20-35	---	NP
	2-60	Fine sandy loam, very fine sandy loam.	ML, SM, CL-ML, SM-SC	A-4	0	100	100	70-100	45-65	15-25	NP-10
Redhouse	0-5	Fine sandy loam	SM-SC, SM	A-4	0	95-100	90-100	65-85	35-50	20-30	NP-10
	5-13	Sandy clay loam	SC, CL	A-6	0	90-100	85-100	70-90	35-55	30-40	10-20
	13-60	Gravelly sandy clay loam, sandy clay loam.	SC, GC	A-2, A-6	0	65-95	55-90	50-80	25-50	30-40	10-20
33*:											
Myton family	0-6	Very gravelly sandy loam.	GM, SM	A-1	0-10	40-60	35-55	25-35	10-20	20-25	NP-5
	6-60	Very cobbly sandy loam, very gravelly sandy loam.	GM, SM	A-1	20-40	50-75	40-70	25-45	15-25	20-25	NP-5
Rock outcrop.											
34*:											
Myton family	0-4	Extremely bouldery loam.	GM-GC	A-2	40-65	40-60	35-45	30-40	25-35	25-35	5-10
	4-60	Very cobbly sandy loam, very gravelly sandy loam.	GM, SM	A-1	20-40	50-75	40-70	25-45	15-25	20-25	NP-5
Shalet	0-2	Clay loam	CL	A-6	0-5	80-100	75-100	70-100	55-80	30-40	10-20
	2-12	Clay loam	CL	A-6	0-5	80-100	75-100	70-100	55-80	30-40	10-20
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Badland.											

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
35*:											
Myton family----	0-4	Extremely bouldery loam.	GM-GC	A-2	40-65	40-60	35-45	30-40	25-35	25-35	5-10
	4-60	Very cobbly sandy loam, very gravelly sandy loam.	GM, SM	A-1	20-40	50-75	40-70	25-45	15-25	20-25	NP-5
Skos----------	0-3	Channery sandy loam.	GM-GC, SM-SC	A-2	5-10	55-75	55-70	40-55	20-35	20-25	5-10
	3-19	Very channery sandy clay loam, very channery clay loam, very gravelly clay loam.	GC	A-2, A-6	5-15	30-60	30-55	25-50	15-45	30-40	10-20
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
36----------	0-2	Fine sandy loam	SM	A-4	0	100	100	70-85	40-50	15-25	NP-5
Nakai	2-28	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	80-100	65-85	40-50	15-25	NP-10
	28-44	Fine sandy loam	SM, SM-SC	A-4	0	85-100	80-100	55-85	35-50	15-25	NP-10
	44	Cemented---------	---	---	---	---	---	---	---	---	---
37*:											
Nakai----------	0-2	Loamy fine sand	SM	A-2	0	100	100	75-100	20-35	---	NP
	2-60	Fine sandy loam, very fine sandy loam.	ML, SM, CL-ML, SM-SC	A-4	0	100	100	70-100	45-65	15-25	NP-10
Moffat----------	0-3	Fine sandy loam	SM, ML	A-4	0	95-100	90-100	70-85	35-55	---	NP
	3-60	Fine sandy loam, sandy loam.	SM, SM-SC	A-4, A-2	0	95-100	90-100	65-85	25-45	20-30	NP-10
Sheppard--------	0-6	Loamy fine sand	SM	A-2	0	100	100	65-80	25-35	---	NP
	6-60	Loamy fine sand, fine sand, loamy sand.	SM	A-2	0	100	90-100	70-80	15-25	---	NP
38*----------	0-5	Very cobbly fine sandy loam.	SM	A-2, A-4	25-30	70-75	65-70	40-60	25-40	15-20	NP-5
Oljeto family	5-60	Extremely cobbly loamy fine sand, extremely cobbly sand.	GP, GP-GM	A-1	40-45	40-45	35-40	15-30	0-10	---	NP
39*:											
Pastern----------	0-2	Fine sandy loam	SM, SM-SC	A-2, A-4	0	100	95-100	70-85	30-45	20-30	NP-10
	2-13	Fine sandy loam, gravelly fine sandy loam, gravelly loam.	SM, SM-SC	A-2, A-4	0-10	75-100	70-100	50-85	20-50	20-30	NP-10
	13	Indurated--------	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
39*:											
Rizno	0-3	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	80-100	75-100	55-85	35-55	15-25	NP-10
	3-9	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	95-100	90-100	65-85	35-55	15-30	NP-10
	9	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
40*:											
Piute	0-9	Loamy fine sand	SM	A-2	0	100	100	80-100	25-35	---	NP
	9	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sheppard	0-6	Loamy fine sand	SM	A-2	0	100	100	65-80	25-35	---	NP
	6-60	Loamy fine sand, fine sand, loamy sand.	SM	A-2	0	100	90-100	70-80	15-25	---	NP
Rock outcrop.											
41 Recapture	0-6	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0	95-100	90-100	70-85	40-55	20-30	NP-10
	6-53	Loam, clay loam, sandy clay loam.	SC, CL	A-6	0	95-100	90-100	70-90	40-80	30-40	10-20
	53-60	Silt loam, very fine sandy loam, loam.	SM-SC, CL-ML, ML, SM	A-4	0	95-100	90-100	75-100	45-90	20-30	NP-10
42*:											
Recapture	0-16	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0	95-100	90-100	70-85	40-55	20-30	NP-10
	16-42	Loam, clay loam, sandy clay loam.	SC, CL, CL-ML	A-6	0	95-100	90-100	70-90	40-80	30-40	10-20
	42-60	Silt loam, very fine sandy loam, loam.	SM-SC, CL-ML, ML, SM	A-4	0	95-100	90-100	75-100	45-90	20-30	NP-10
Redbank family--	0-3	Fine sandy loam	SM, SM-SC, CL-ML, ML	A-2, A-4	0-20	75-100	70-100	50-95	30-65	20-30	NP-10
	3-60	Sandy loam, fine sandy loam, loam.	SM, SM-SC, CL-ML, ML	A-2, A-4	0-15	85-100	80-100	45-95	25-75	20-30	NP-10
Bankard family--	0-12	Fine sandy loam	SM, ML	A-4	0-10	85-100	80-100	70-95	45-60	15-25	NP-10
	12-60	Stratified gravelly loamy fine sand to fine sandy loam.	SP, SM	A-1, A-2, A-4	0-10	65-100	60-100	45-85	15-30	---	NP
43*:											
Redbank family--	0-3	Fine sandy loam	SM, SM-SC, CL-ML, ML	A-2, A-4	0-20	75-100	70-100	50-95	30-65	20-30	NP-10
	3-60	Sandy loam, fine sandy loam, loam.	SM, SM-SC, CL-ML, ML	A-2, A-4	0-15	85-100	80-100	45-95	25-75	20-30	NP-10

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
43*:											
Riverwash.											
Green River family---	0-13	Coarse sandy loam	SM	A-4	0	100	100	60-70	35-50	---	NP
	13-21	Fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	100	100	70-90	40-65	20-25	5-10
	21-60	Loam, fine sandy loam.	CL-ML, SM-SC	A-4	0	100	100	85-95	40-75	20-25	5-10
44--- Redhouse	0-5	Fine sandy loam	SM-SC, SM	A-4	0	95-100	90-100	65-85	35-50	20-30	NP-10
	5-13	Sandy clay loam	SC, CL	A-6	0	90-100	85-100	70-90	35-55	30-40	10-20
	13-60	Gravelly sandy clay loam, sandy clay loam.	SC, GC	A-2, A-6	0	65-95	55-90	50-80	25-50	30-40	10-20
45*:											
Rizno---	0-5	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	80-100	75-100	55-85	35-55	15-25	NP-10
	5-19	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	95-100	90-100	65-85	35-55	15-30	NP-10
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Barx---	0-9	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	90-100	50-60	15-25	NP-10
	9-32	Sandy clay loam	CL	A-6	0	100	100	90-100	50-70	25-40	10-20
	32-60	Sandy clay loam	CL	A-6	0	100	100	90-100	50-60	25-40	10-20
Yarts---	0-5	Fine sandy loam	SM-SC, CL-ML, SM, ML	A-4	0	100	100	70-85	40-60	20-30	NP-10
	5-60	Fine sandy loam, sandy loam.	SM-SC, CL-ML, SM, ML	A-4	0	100	100	70-85	40-60	20-30	NP-10
46*:											
Rizno---	0-5	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	80-100	75-100	55-85	35-55	15-25	NP-10
	5-19	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	95-100	90-100	65-85	35-55	15-30	NP-10
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cahona---	0-3	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	95-100	50-80	10-20	NP-10
	3-27	Sandy clay loam, silty clay loam, clay loam.	CL	A-6	0	100	100	95-100	80-95	30-40	10-20
	27-60	Very fine sandy loam, loam, fine sandy loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	50-95	20-35	5-15
Rock outcrop.											

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
47*:											
Rizno	0-3	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	80-100	75-100	55-85	35-55	15-25	NP-10
	3-13	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	95-100	90-100	65-85	35-55	15-30	NP-10
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Littlenan	0-3	Gravelly loam	SM-SC, SC, CL-ML	A-4, A-6, A-7	0-10	60-85	50-75	45-75	35-65	25-45	5-20
	3-29	Silty clay loam, silty clay, clay loam.	CL	A-7	0-10	90-100	85-100	75-100	65-95	40-50	15-30
	29	Weathered bedrock	---	---	---	---	---	---	---	---	---
Bodot	0-6	Very cobbly loam	GM-GC, GC, SC, SM-SC	A-2	40-70	50-70	45-65	20-45	15-35	25-35	5-15
	6-15	Clay loam, silty clay loam, sandy clay loam.	CL	A-6, A-7	0-20	95-100	90-100	60-90	55-85	35-45	15-25
	15-36	Clay, silty clay, clay loam.	CH, CL	A-7	0	100	100	70-100	65-90	40-60	20-40
	36	Weathered bedrock	---	---	---	---	---	---	---	---	---
48*:											
Rizno	0-3	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	80-100	75-100	55-85	35-55	15-25	NP-10
	3-9	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	95-100	90-100	65-85	35-55	15-30	NP-10
	9	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Mido	0-10	Loamy fine sand	SM	A-2, A-4	0	100	100	75-95	30-50	---	NP
	10-60	Loamy fine sand, fine sand, loamy sand.	SM, SP-SM	A-2, A-3	0	100	100	70-95	5-35	---	NP
49*:											
Rizno	0-5	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	80-100	75-100	55-85	35-55	15-25	NP-10
	5-19	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	95-100	90-100	65-85	35-55	15-30	NP-10
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
50*:											
Rizno	0-3	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	80-100	75-100	55-85	35-55	15-25	NP-10
	3-13	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	95-100	90-100	65-85	35-55	15-30	NP-10
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
50*:											
Ruinpoint-------	0-2	Very fine sandy loam.	CL-ML, ML	A-4	0	100	100	70-100	50-65	20-30	NP-10
	2-13	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	80-95	30-40	10-20
	13-60	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	80-95	30-40	10-20
Rock outcrop.											
51*:											
Rizno-----------	0-3	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	80-100	75-100	55-85	35-55	15-25	NP-10
	3-9	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	95-100	90-100	65-85	35-55	15-30	NP-10
	9	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Skos------------	0-1	Channery loam----	GM-GC, GC, SM-SC, SC	A-4, A-6, A-2	5-10	55-75	55-70	45-60	30-50	20-30	5-15
	1-6	Very channery sandy clay loam, very channery clay loam, very gravelly clay loam.	GC	A-2, A-6	5-15	30-60	30-55	25-50	15-45	30-40	10-20
	6	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
52*:											
Rizno-----------	0-3	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	80-100	75-100	55-85	35-55	15-25	NP-10
	3-13	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	95-100	90-100	65-85	35-55	15-30	NP-10
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Strych----------	0-12	Very stony fine sandy loam.	SM-SC, GM-GC	A-2, A-4	30-50	45-75	40-70	30-70	20-45	20-30	NP-10
	12-60	Very stony fine sandy loam, extremely stony fine sandy loam, very cobbly fine sandy loam.	SM-SC, GM-GC	A-2, A-4	30-50	45-75	40-70	30-70	20-45	20-30	5-10

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
53*:											
Robroost family-	0-1	Very fine sandy loam.	SM, ML	A-4	0-10	80-100	75-100	60-100	40-65	20-25	NP-5
	1-34	Gravelly fine sandy loam, fine sandy loam.	SM	A-1, A-2, A-4	0-10	55-100	50-95	40-95	15-50	20-25	NP-5
	34-60	Very fine sandy loam, gravelly very fine sandy loam.	SM, ML	A-2, A-4	0-10	55-100	50-95	45-95	25-65	20-25	NP-5
Gypsum land.											
54*:											
Rock outcrop.											
Piute----------	0-9	Loamy fine sand	SM	A-2	0	100	100	80-100	25-35	---	NP
	9	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sheppard--------	0-6	Loamy fine sand	SM	A-2	0	100	100	65-80	25-35	---	NP
	6-60	Loamy fine sand, fine sand, loamy sand.	SM	A-2	0	100	90-100	70-80	15-25	---	NP
55*:											
Rock outcrop.											
Piute----------	0-10	Loamy fine sand	SM	A-2	0	100	100	80-100	25-35	---	NP
	10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Skos----------	0-3	Channery sandy loam.	GM-GC, SM-SC	A-2	5-10	55-75	55-70	40-55	20-35	20-25	5-10
	3-6	Very channery sandy clay loam, very channery clay loam, very gravelly clay loam.	GC	A-2, A-6	5-15	30-60	30-55	25-50	15-45	30-40	10-20
	6	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
56*:											
Rock outcrop.											
Strych----------	0-12	Very stony fine sandy loam.	SM-SC, GM-GC	A-2, A-4	30-50	45-75	40-70	30-70	20-45	20-30	NP-10
	12-60	Very stony fine sandy loam, extremely stony fine sandy loam, very cobbly fine sandy loam.	SM-SC, GM-GC	A-2, A-4	30-50	45-75	40-70	30-70	20-45	20-30	5-10

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
56*:											
Rizno	0-5	Gravelly fine sandy loam.	SM-SC, SM, GM-GC, GM	A-2, A-4, A-1	0-10	55-80	50-75	35-55	20-40	15-25	NP-10
	5-19	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	95-100	90-100	65-85	35-55	15-30	NP-10
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
57*:											
Rubble land.											
Rock outcrop.											
58*:											
Ruinpoint	0-2	Very fine sandy loam.	CL-ML, ML	A-4	0	100	100	70-100	50-65	20-30	NP-10
	2-13	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	80-95	30-40	10-20
	13-60	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	80-95	30-40	10-20
Cahona	0-3	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	60-75	15-25	NP-10
	3-15	Sandy clay loam, silty clay loam, clay loam.	CL	A-6	0	100	100	95-100	80-95	30-40	10-20
	15-60	Very fine sandy loam, loam, fine sandy loam.	CL-ML, CL	A-4, A-6	0	100	100	95-100	50-95	20-35	5-15
59*:											
Shalet	0-2	Clay loam	CL	A-6	0-5	80-100	75-100	70-100	55-80	30-40	10-20
	2-12	Clay loam	CL	A-6	0-5	80-100	75-100	70-100	55-80	30-40	10-20
	12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Moenkopie	0-1	Very gravelly fine sandy loam.	GM-GC, SM	A-1, A-2	0-10	35-50	30-45	15-30	10-15	15-25	NP-10
	1-9	Sandy loam, fine sandy loam, loam.	SM-SC, SM	A-2, A-4	0-5	80-100	75-100	45-70	25-45	15-25	NP-10
	9	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Badland.											
60 Skos	0-2	Channery fine sandy loam.	GM-GC, SM-SC	A-2	5-10	55-75	55-70	40-55	20-35	20-25	5-10
	2-13	Very channery sandy clay loam, very channery clay loam, very gravelly clay loam.	GC	A-2, A-6	5-15	30-60	30-55	25-50	15-45	30-40	10-20
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
61*:											
Skos	0-3	Channery sandy loam.	GM-GC, SM-SC	A-2	5-10	55-75	55-70	40-55	20-35	20-25	5-10
	3-6	Very channery sandy clay loam, very channery clay loam, very gravelly clay loam.	GC	A-2, A-6	5-15	30-60	30-55	25-50	15-45	30-40	10-20
	6	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
62*:											
Skos	0-1	Channery loam----	GM-GC, GC, SM-SC, SC	A-4, A-6, A-2	5-10	55-75	55-70	45-60	30-50	20-30	5-15
	1-6	Very channery sandy clay loam, very channery clay loam, very gravelly clay loam.	GC	A-2, A-6	5-15	30-60	30-55	25-50	15-45	30-40	10-20
	6	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
63*:											
Strych	0-8	Extremely bouldery fine sandy loam.	SM-SC, SM	A-2, A-4	40-80	65-90	60-80	50-75	25-50	20-30	NP-10
	8-60	Very stony fine sandy loam, extremely stony fine sandy loam, very cobbly fine sandy loam.	SM-SC, GM-GC	A-2, A-4	30-50	45-75	40-70	30-70	20-45	20-30	5-10
Rizno	0-5	Gravelly fine sandy loam.	SM-SC, SM, GM-GC, GM	A-2, A-4, A-1	0-10	55-80	50-75	35-55	20-40	15-25	NP-10
	5-19	Fine sandy loam	SM, ML, SM-SC, CL-ML	A-4	0-10	95-100	90-100	65-85	35-55	15-30	NP-10
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Strych, very steep	0-12	Very stony fine sandy loam.	SM-SC, GM-GC	A-2, A-4	30-50	45-75	40-70	30-70	20-45	20-30	NP-10
	12-60	Very stony fine sandy loam, extremely stony fine sandy loam, very cobbly fine sandy loam.	SM-SC, GM-GC	A-2, A-4	30-50	45-75	40-70	30-70	20-45	20-30	5-10

See footnote at end of table.

TABLE 9.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	> 3 inches	4	10	40	200		
	In				Pct					Pct	
64*:											
Strych	0-3	Very stony sandy clay loam.	GM, SM	A-1, A-2, A-4	45-70	65-90	60-85	35-75	15-50	20-35	NP-10
	3-60	Very cobbly fine sandy loam, very gravelly loam, very gravelly fine sandy loam.	GM, SM, ML	A-1, A-2, A-4	30-70	55-90	50-85	45-80	15-65	20-35	NP-10
Skos	0-4	Channery loam	GM-GC, GC, SM-SC, SC	A-4, A-6, A-2	5-10	55-75	55-70	45-60	30-50	20-30	5-15
	4-14	Very channery sandy clay loam, very channery clay loam, very gravelly clay loam.	GC	A-2, A-6	5-15	30-60	30-55	25-50	15-45	30-40	10-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Badland.											
65*:											
Strych	0-16	Extremely bouldery sandy loam.	GM, SM	A-1, A-2, A-4	45-70	65-90	60-85	35-75	15-50	20-35	NP-10
	16-60	Very cobbly fine sandy loam, very gravelly loam, very gravelly fine sandy loam.	GM, SM, ML	A-1, A-2, A-4	30-70	55-90	50-85	45-80	15-65	20-35	NP-10
Skos	0-3	Channery sandy loam.	GM-GC, SM-SC	A-2	5-10	55-75	55-70	40-55	20-35	20-25	5-10
	3-19	Very channery sandy clay loam, very channery clay loam, very gravelly clay loam.	GC	A-2, A-6	5-15	30-60	30-55	25-50	15-45	30-40	10-20
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Badland.											
66	0-7	Silt loam	CL-ML	A-4	0	100	100	90-100	70-90	25-35	5-10
Suwanee	7-60	Stratified fine sandy loam to silty clay loam.	CL-ML, SM-SC, CL	A-4, A-6	0	100	100	70-100	40-90	25-40	5-15
67	0-8	Fine sandy loam	SM-SC	A-4	0	100	100	70-85	35-50	20-25	NP-5
Trail	8-60	Stratified sand to fine sandy loam.	SM	A-2, A-4	0	100	100	55-80	10-45	15-25	NP-5
68	0-5	Fine sandy loam	SM-SC, CL-ML, SM, ML	A-4	0	100	100	70-85	40-60	20-30	NP-10
Yarts	5-60	Fine sandy loam, sandy loam.	SM-SC, CL-ML, SM, ML	A-4	0	100	100	70-85	40-60	20-30	NP-10

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
1*:												
Arches	0-4	2-4	1.30-1.40	6.0-20	0.06-0.08	7.4-8.4	<2	Low	0.28	1	1	<1
	4-18	2-6	1.30-1.50	6.0-20	0.06-0.08	7.4-9.0	<2	Low	0.28			
	18	---	---	---	---	---	---	---	---			
Rizno	0-3	3-18	1.30-1.55	2.0-6.0	0.08-0.12	7.4-8.4	<2	Low	0.32	1	3	.5-1
	3-18	5-18	1.30-1.55	2.0-6.0	0.08-0.12	7.9-9.0	<2	Low	0.32			
	18	---	---	---	---	---	---	---	---			
Mido	0-10	2-10	1.40-1.50	6.0-20	0.08-0.10	7.9-9.0	<2	Low	0.37	5	2	<1
	10-60	3-8	1.40-1.50	6.0-20	0.05-0.09	7.9-9.0	<2	Low	0.32			
2*:												
Badland.												
Rock outcrop.												
3*:												
Bankard family	0-12	5-15	1.20-1.35	6.0-20	0.10-0.12	7.4-8.4	<2	Low	0.24	5	3	1-3
	12-60	2-12	1.35-1.55	6.0-20	0.05-0.09	7.4-8.4	<2	Low	0.17			
Riverwash.												
4*:												
Bankard family	0-6	5-15	1.20-1.35	6.0-20	0.10-0.12	7.4-8.4	<2	Low	0.24	5	3	1-3
	6-60	2-12	1.35-1.55	6.0-20	0.05-0.09	7.4-8.4	<2	Low	0.17			
Sheppard	0-6	2-5	1.50-1.60	6.0-20	0.06-0.08	7.4-8.4	<2	Low	0.24	5	2	<.5
	6-60	3-8	1.50-1.60	6.0-20	0.06-0.08	7.4-9.0	<2	Low	0.20			
5	0-3	10-18	1.30-1.40	2.0-6.0	0.14-0.16	7.4-8.4	<2	Low	0.43	5	3	1-3
Barx	3-9	10-18	1.40-1.50	2.0-6.0	0.11-0.13	7.4-8.4	<2	Low	0.28			
	9-36	20-35	1.30-1.40	0.6-2.0	0.17-0.18	7.4-8.4	<2	Moderate	0.28			
	36-60	20-35	1.40-1.50	0.6-2.0	0.17-0.18	7.9-9.0	<2	Moderate	0.28			
6*:												
Barx	0-9	10-18	1.30-1.40	2.0-6.0	0.14-0.16	7.4-8.4	<2	Low	0.43	5	3	1-3
	9-32	20-35	1.30-1.40	0.6-2.0	0.17-0.18	7.4-8.4	<2	Moderate	0.28			
	32-60	20-35	1.40-1.50	0.6-2.0	0.17-0.18	7.9-9.0	<2	Moderate	0.28			
Strych	0-8	8-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-8.4	<2	Low	0.20	5	8	1-3
	8-60	14-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-9.0	<2	Low	0.20			
Skos	0-2	15-20	1.35-1.50	2.0-6.0	0.07-0.10	7.4-8.4	<2	Low	0.20	1	5	1-2
	2-13	20-35	1.25-1.45	0.6-2.0	0.08-0.13	7.9-8.4	<2	Moderate	0.15			
	13	---	---	---	---	---	---	---	---			
7*:												
Bluechief	0-2	5-10	1.40-1.50	2.0-6.0	0.11-0.13	7.9-8.4	<2	Low	0.37	2	3	.5-1
	2-15	10-15	1.40-1.50	2.0-6.0	0.11-0.13	7.9-9.0	<2	Low	0.43			
	15-26	12-18	1.40-1.50	2.0-6.0	0.11-0.14	7.9-9.0	<2	Low	0.43			
	26	---	---	---	---	---	---	---	---			
Limeridge	0-3	8-18	1.25-1.35	2.0-6.0	0.10-0.12	7.9-8.4	<2	Low	0.32	2	3	.5-1
	3-19	12-20	1.40-1.50	2.0-6.0	0.09-0.13	7.9-9.0	<2	Low	0.24			
	19	---	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 10.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
7*:												
Nakai	0-2	6-14	1.30-1.40	2.0-6.0	0.10-0.13	7.9-8.4	<2	Low	0.32	3	3	.5-1
	2-28	10-18	1.25-1.40	2.0-6.0	0.10-0.14	7.9-9.0	<2	Low	0.43			
	28-44	10-18	1.25-1.40	2.0-6.0	0.08-0.13	>7.8	<2	Low	0.24			
	44	---	---	---	---	---	---	---	---			
8*:												
Bodot	0-3	20-27	1.15-1.35	0.2-2.0	0.08-0.12	7.9-8.4	<2	Moderate	0.43	2	8	1-2
	3-29	30-40	1.20-1.40	0.06-0.6	0.16-0.18	7.9-8.4	<2	High	0.43			
	29-38	35-60	1.20-1.40	0.06-0.2	0.17-0.18	7.9-8.4	<2	High	0.37			
	38	---	---	---	---	---	---	---	---			
Strych	0-8	8-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-8.4	<2	Low	0.20	5	8	1-3
	8-60	14-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-9.0	<2	Low	0.20			
Skos	0-2	15-20	1.35-1.50	2.0-6.0	0.07-0.10	7.4-8.4	<2	Low	0.20	1	5	1-2
	2-13	20-35	1.25-1.45	0.6-2.0	0.08-0.13	7.9-8.4	<2	Moderate	0.15			
	13	---	---	---	---	---	---	---	---			
9*:												
Bookcliff	0-8	10-26	1.20-1.30	0.2-0.6	0.13-0.19	6.6-8.4	<2	Moderate	0.17	4	5	3-5
	8-47	18-31	1.25-1.40	0.2-0.6	0.12-0.19	6.6-8.4	<2	Moderate	0.32			
	47	---	---	---	---	---	---	---	---			
Bookcliff, dry	0-14	10-20	1.25-1.40	0.6-2.0	0.14-0.17	6.6-8.4	<2	Low	0.28	4	5	3-5
	14-44	18-31	1.25-1.40	0.2-0.6	0.12-0.19	6.6-8.4	<2	Moderate	0.32			
	44	---	---	---	---	---	---	---	---			
10*:												
Bookcliff	0-14	10-20	1.25-1.40	0.6-2.0	0.14-0.17	6.6-8.4	<2	Low	0.28	4	5	3-5
	14-44	18-31	1.25-1.40	0.2-0.6	0.12-0.19	6.6-8.4	<2	Moderate	0.32			
	44	---	---	---	---	---	---	---	---			
Skos	0-2	15-20	1.35-1.50	2.0-6.0	0.07-0.10	7.4-8.4	<2	Low	0.20	1	5	1-2
	2-13	20-35	1.25-1.45	0.6-2.0	0.08-0.13	7.9-8.4	<2	Moderate	0.15			
	13	---	---	---	---	---	---	---	---			
Strych	0-12	8-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-8.4	<2	Low	0.20	5	8	1-3
	12-60	14-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-9.0	<2	Low	0.20			
11	0-3	10-20	1.40-1.50	0.6-2.0	0.14-0.16	6.6-8.4	<2	Low	0.37	5	3	1-2
Cahona	3-27	20-35	1.30-1.40	0.2-0.6	0.15-0.17	6.6-8.4	<2	Moderate	0.37			
	27-60	10-27	1.40-1.50	0.6-2.0	0.13-0.16	7.9-9.0	<2	Low	0.37			
12	0-11	18-27	1.25-1.40	0.6-2.0	0.16-0.18	7.4-7.8	<4	Low	0.43	5	4L	.5-1
Gilco	11-45	10-18	1.40-1.50	0.6-2.0	0.10-0.14	7.4-8.4	<4	Low	---			
	45-60	5-10	1.45-1.60	6.0-20	0.08-0.11	7.4-7.8	<4	Low	---			
13	0-15	30-40	1.30-1.40	0.06-0.2	0.16-0.18	7.4-7.8	<4	Moderate	0.37	5	4	.5-1
Gilco	15-60	10-18	1.40-1.50	0.6-2.0	0.10-0.14	7.4-8.4	<4	Low	---			
14*:												
Gilco	0-7	10-20	1.45-1.55	2.0-6.0	0.09-0.13	7.4-7.8	<4	Low	0.28	5	3	.5-1
	7-47	10-18	1.40-1.50	0.6-2.0	0.10-0.14	7.4-8.4	<4	Low	---			
	47-60	5-10	1.45-1.60	6.0-20	0.08-0.11	7.4-7.8	<4	Low	---			
Trail	0-8	10-20	1.45-1.55	6.0-20	0.07-0.09	7.4-9.0	<4	Low	0.24	5	3	.5-1
	8-60	10-20	1.45-1.55	6.0-20	0.07-0.09	7.4-9.0	<4	Low	0.24			

See footnote at end of table.

TABLE 10.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
15*:												
Green River family	0-13	5-10	1.45-1.55	2.0-6.0	0.10-0.12	7.9-8.4	>4	Low	0.20	5	8	1-3
	13-21	10-18	1.35-1.45	2.0-6.0	0.10-0.14	7.9-8.4	>4	Low	0.24			
	21-60	10-18	1.25-1.35	2.0-6.0	0.13-0.17	7.9-9.0	>4	Low	0.32			
Bankard family	0-12	5-15	1.20-1.35	6.0-20	0.10-0.12	7.4-8.4	<2	Low	0.24	5	3	1-3
	12-60	2-12	1.35-1.55	6.0-20	0.05-0.09	7.4-8.4	<2	Low	0.17			
Riverwash.												
16	0-9	15-25	1.20-1.35	0.6-2.0	0.11-0.17	7.4-7.8	<2	Low	0.37	1	5	3-5
Kiln	9-18	28-35	1.20-1.30	0.6-2.0	0.16-0.18	7.4-7.8	<2	Moderate	0.15			
	18	---	---	---	---	---	---	---	---			
17	0-1	8-18	1.25-1.35	2.0-6.0	0.11-0.14	7.9-8.4	<2	Low	0.28	2	3	.5-1
Limeridge	1-8	12-20	1.40-1.50	2.0-6.0	0.09-0.13	7.9-9.0	<2	Low	0.24			
	8-16	18-30	1.40-1.50	0.6-2.0	0.11-0.15	8.5-9.0	<2	Low	0.15			
	16	---	---	---	---	---	---	---	---			
18*:												
Littlenan	0-3	20-40	1.20-1.35	0.06-0.6	0.14-0.16	7.9-8.4	<2	Moderate	0.20	3	4L	<1
	3-29	35-45	1.15-1.30	0.06-0.2	0.16-0.18	7.9-9.0	2-4	High	0.24			
	29	---	---	---	---	---	---	---	---			
Moenkopie	0-2	5-17	1.30-1.40	2.0-6.0	0.06-0.10	7.4-9.0	<2	Low	0.10	1	6	<1
	2-6	7-20	1.35-1.45	2.0-6.0	0.10-0.13	7.4-9.0	<2	Low	0.28			
	6	---	---	---	---	---	---	---	---			
Recapture	0-16	8-18	1.25-1.40	2.0-6.0	0.11-0.13	7.9-9.0	<4	Low	0.24	5	3	<1
	16-42	18-30	1.30-1.50	0-6-2.0	0.15-0.17	>8.4	4-8	Low	0.28			
	42-60	10-25	1.30-1.50	0.6-2.0	0.13-0.17	>8.4	4-8	Low	0.37			
19*:												
Littlenan	0-3	20-40	1.20-1.35	0.06-0.6	0.14-0.16	7.9-8.4	<2	Moderate	0.20	3	4L	<1
	3-29	35-45	1.15-1.30	0.06-0.2	0.16-0.18	7.9-9.0	2-4	High	0.24			
	29	---	---	---	---	---	---	---	---			
Ruinpoint	0-2	15-20	1.15-1.25	2.0-6.0	0.12-0.18	7.4-8.4	<2	Low	0.43	5	3	1-2
	2-13	20-30	1.05-1.20	0.6-2.0	0.15-0.18	7.4-8.4	<2	Moderate	0.43			
	13-60	20-30	1.10-1.25	0.6-2.0	0.15-0.18	7.9-9.0	<2	Moderate	0.43			
Rizno	0-3	10-17	1.20-1.40	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low	0.28	1	3	.5-1
	3-13	10-18	1.20-1.40	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.28			
	13	---	---	---	---	---	---	---	---			
20*:												
Mido	0-10	2-10	1.40-1.50	6.0-20	0.08-0.10	7.9-9.0	<2	Low	0.37	5	2	<1
	10-60	3-8	1.40-1.50	6.0-20	0.05-0.09	7.9-9.0	<2	Low	0.32			
Riverwash.												
21*:												
Mido	0-10	2-10	1.40-1.50	6.0-20	0.08-0.10	7.9-9.0	<2	Low	0.37	5	2	<1
	10-60	3-8	1.40-1.50	6.0-20	0.05-0.09	7.9-9.0	<2	Low	0.32			
Rizno	0-3	3-18	1.30-1.55	2.0-6.0	0.08-0.12	7.4-8.4	<2	Low	0.32	1	3	.5-1
	3-18	5-18	1.30-1.55	2.0-6.0	0.08-0.12	7.9-9.0	<2	Low	0.32			
	18	---	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 10.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
22*:												
Mido	0-10	2-10	1.40-1.50	6.0-20	0.08-0.10	7.9-9.0	<2	Low	0.37	5	2	<1
	10-60	3-8	1.40-1.50	6.0-20	0.05-0.09	7.9-9.0	<2	Low	0.32			
Rock outcrop.												
Arches	0-4	2-4	1.30-1.40	6.0-20	0.06-0.08	7.4-8.4	<2	Low	0.28	1	1	<1
	4-18	2-6	1.30-1.50	6.0-20	0.06-0.08	7.4-9.0	<2	Low	0.28			
	18	---	---	---	---	---	---	---	---			
23	0-2	12-18	1.35-1.45	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low	0.24	5	3	1-2
Milok	2-8	12-18	1.35-1.45	2.0-6.0	0.10-0.14	7.9-9.0	<4	Low	0.24			
	8-60	15-18	1.30-1.40	2.0-6.0	0.13-0.16	7.9-9.0	>8	Low	0.24			
24*:												
Milok	0-2	12-18	1.35-1.45	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low	0.24	5	3	1-2
	2-8	12-18	1.35-1.45	2.0-6.0	0.10-0.14	7.9-9.0	<4	Low	0.24			
	8-60	15-18	1.30-1.40	2.0-6.0	0.13-0.16	7.9-9.0	>8	Low	0.24			
Mivida	0-7	5-18	1.35-1.45	2.0-6.0	0.10-0.13	7.9-8.4	<2	Low	0.24	5	3	1-2
	7-60	10-18	1.35-1.45	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.24			
25*:												
Milok	0-2	12-18	1.35-1.45	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low	0.24	5	3	1-2
	2-8	12-18	1.35-1.45	2.0-6.0	0.10-0.14	7.9-9.0	<4	Low	0.24			
	8-60	15-18	1.30-1.40	2.0-6.0	0.13-0.16	7.9-9.0	>8	Low	0.24			
Skos	0-1	15-27	1.25-1.45	0.6-2.0	0.11-0.15	7.4-8.4	<2	Low	0.24	1	5	1-2
	1-6	20-35	1.25-1.45	0.6-2.0	0.08-0.13	7.9-8.4	<2	Moderate	0.15			
	6	---	---	---	---	---	---	---	---			
Strych	0-2	8-26	1.15-1.35	0.6-2.0	0.06-0.12	7.4-8.4	<2	Low	0.24	5	8	1-2
	2-60	10-18	1.15-1.35	2.0-6.0	0.06-0.13	7.4-8.4	<2	Low	0.24			
26	0-7	5-18	1.35-1.45	2.0-6.0	0.10-0.13	7.9-8.4	<2	Low	0.24	5	3	1-2
Mivida	7-60	10-18	1.35-1.45	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.24			
27*:												
Mivida	0-7	5-18	1.35-1.45	2.0-6.0	0.10-0.13	7.9-8.4	<2	Low	0.24	5	3	1-2
	7-60	10-18	1.35-1.45	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.24			
Pastern	0-2	7-15	1.30-1.45	2.0-6.0	0.12-0.14	7.9-9.0	<2	Low	0.32	1	3	<1
	2-13	5-18	1.25-1.45	0.6-2.0	0.08-0.14	8.5-9.0	2-4	Low	0.20			
	13	---	---	---	---	---	---	---	---			
Rock outcrop.												
28*:												
Moenkopie	0-2	5-17	1.30-1.40	2.0-6.0	0.06-0.10	7.4-9.0	<2	Low	0.10	1	6	<1
	2-6	7-20	1.35-1.45	2.0-6.0	0.10-0.13	7.4-9.0	<2	Low	0.28			
	6	---	---	---	---	---	---	---	---			
Moenkopie, warm-	0-1	5-17	1.30-1.40	2.0-6.0	0.06-0.10	7.4-9.0	<2	Low	0.10	1	6	<1
	1-9	7-20	1.35-1.45	2.0-6.0	0.10-0.13	7.4-9.0	<2	Low	0.28			
	9	---	---	---	---	---	---	---	---			
29*:												
Moenkopie	0-1	5-17	1.30-1.40	2.0-6.0	0.06-0.10	7.4-9.0	<2	Low	0.10	1	6	<1
	1-9	7-20	1.35-1.45	2.0-6.0	0.10-0.13	7.4-9.0	<2	Low	0.28			
	9	---	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 10.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
29*:												
Rock outcrop.												
30----------	0-10	6-12	1.45-1.55	2.0-6.0	0.11-0.13	7.9-8.4	<2	Low--------	0.24	5	3	<1
Moffat	10-60	7-18	1.30-1.45	2.0-6.0	0.11-0.14	7.9-9.0	<2	Low--------	0.24			
31----------	0-19	2-6	1.45-1.55	2.0-6.0	0.08-0.10	7.4-8.4	<2	Low--------	0.20	5	2	<1
Moffat	19-60	7-18	1.30-1.45	2.0-6.0	0.11-0.14	7.9-9.0	<2	Low--------	0.24			
32*:												
Myton family----	0-6	10-15	1.35-1.45	2.0-6.0	0.05-0.08	7.9-8.4	<2	Low--------	0.10	5	6	.5-1
	6-60	10-18	1.35-1.45	2.0-6.0	0.05-0.08	7.9-9.0	<2	Low--------	0.05			
Nakai----------	0-2	3-10	1.45-1.55	6.0-20.0	0.07-0.09	7.9-9.0	<2	Low--------	0.28	5	2	.5-1
	2-60	8-18	1.50-1.60	2.0-6.0	0.10-0.18	7.9-9.0	<2	Low--------	0.43			
Redhouse--------	0-5	8-15	1.30-1.40	2.0-6.0	0.10-0.13	7.9-8.4	<2	Low--------	0.32	5	3	.5-1
	5-13	20-35	1.25-1.40	0.6-2.0	0.15-0.18	7.9-9.0	<2	Moderate	0.24			
	13-60	20-35	1.25-1.40	0.6-2.0	0.13-0.16	7.9-9.0	<2	Moderate	0.24			
33*:												
Myton family----	0-6	10-15	1.35-1.45	2.0-6.0	0.05-0.08	7.9-8.4	<2	Low--------	0.10	5	6	.5-1
	6-60	10-18	1.35-1.45	2.0-6.0	0.05-0.08	7.9-9.0	<2	Low--------	0.05			
Rock outcrop.												
34*:												
Myton family----	0-4	18-27	1.25-1.35	0.6-2.0	0.07-0.11	7.9-8.4	<2	Low--------	0.15	5	8	.5-1
	4-60	10-18	1.35-1.45	2.0-6.0	0.05-0.08	7.9-9.0	<2	Low--------	0.05			
Shalet----------	0-2	27-35	1.20-1.30	0.2-0.6	0.14-0.18	7.9-9.0	<2	Moderate	0.32	1	4L	<.5
	2-12	27-35	1.20-1.30	0.2-0.6	0.14-0.18	7.9-9.0	<2	Moderate	0.37			
	12	---	---	---	---	---	---	----------	----			
Badland.												
35*:												
Myton family----	0-4	18-27	1.25-1.35	0.6-2.0	0.07-0.11	7.9-8.4	<2	Low--------	0.15	5	8	.5-1
	4-60	10-18	1.35-1.45	2.0-6.0	0.05-0.08	7.9-9.0	<2	Low--------	0.05			
Skos----------	0-3	15-20	1.35-1.50	2.0-6.0	0.07-0.10	7.4-8.4	<2	Low--------	0.20	1	5	1-2
	3-19	20-35	1.25-1.45	0.6-2.0	0.08-0.13	7.9-8.4	<2	Moderate	0.15			
	19	---	---	---	---	---	---	----------	----			
Rock outcrop.												
36----------	0-2	6-14	1.30-1.40	2.0-6.0	0.10-0.13	7.9-8.4	<2	Low--------	0.32	3	3	.5-1
Nakai	2-28	10-18	1.25-1.40	2.0-6.0	0.10-0.14	7.9-9.0	<2	Low--------	0.43			
	28-44	10-18	1.25-1.40	2.0-6.0	0.08-0.13	>7.8	<2	Low--------	0.24			
	44	---	---	---	---	---	---	----------	----			
37*:												
Nakai----------	0-2	3-10	1.45-1.55	6.0-20.0	0.07-0.09	7.9-9.0	<2	Low--------	0.28	5	2	.5-1
	2-60	8-18	1.50-1.60	2.0-6.0	0.10-0.18	7.9-9.0	<2	Low--------	0.43			
Moffat----------	0-3	6-12	1.45-1.55	2.0-6.0	0.11-0.13	7.9-8.4	<2	Low--------	0.24	5	3	<1
	3-60	7-18	1.30-1.45	2.0-6.0	0.11-0.14	7.9-9.0	<2	Low--------	0.24			
Sheppard--------	0-6	2-5	1.50-1.60	6.0-20	0.06-0.08	7.4-8.4	<2	Low--------	0.24	5	2	<.5
	6-60	3-8	1.50-1.60	6.0-20	0.06-0.08	7.4-9.0	<2	Low--------	0.20			

See footnote at end of table.

TABLE 10.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
38*--------------	0-5	10-15	1.40-1.50	6.0-20	0.06-0.09	7.4-7.8	<2	Low-------	0.15	5	8	.5-1
Oljeto family	5-60	0-5	1.45-1.55	6.0-20	0.03-0.06	7.4-7.8	<2	Low-------	0.10			
39*:												
Pastern---------	0-2	7-15	1.30-1.45	2.0-6.0	0.12-0.14	7.9-9.0	<2	Low-------	0.32	1	3	<1
	2-13	5-18	1.25-1.45	0.6-2.0	0.08-0.14	8.5-9.0	2-4	Low-------	0.20			
	13	---	---	---	---	---	---	----------	----			
Rizno-----------	0-3	10-17	1.20-1.40	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low-------	0.28	1	3	.5-1
	3-9	10-18	1.20-1.40	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low-------	0.28			
	9	---	---	---	---	---	---	----------	----			
Rock outcrop.												
40*:												
Piute-----------	0-9	2-8	1.45-1.50	2.0-6.0	0.08-0.09	7.4-8.4	<2	Low-------	0.43	1	2	<.5
	9	---	---	---	---	---	---	----------	----			
Sheppard--------	0-6	2-5	1.50-1.60	6.0-20	0.06-0.08	7.4-8.4	<2	Low-------	0.24	5	2	<.5
	6-60	3-8	1.50-1.60	6.0-20	0.06-0.08	7.4-9.0	<2	Low-------	0.20			
Rock outcrop.												
41---------------	0-6	8-18	1.25-1.40	2.0-6.0	0.11-0.13	7.9-9.0	<4	Low-------	0.24	5	3	<1
Recapture	6-53	18-30	1.30-1.50	0.6-2.0	0.15-0.17	>8.4	4-8	Low-------	0.28			
	53-60	10-25	1.30-1.50	0.6-2.0	0.13-0.17	>8.4	4-8	Low-------	0.37			
42*:												
Recapture-------	0-16	8-18	1.25-1.40	2.0-6.0	0.11-0.13	7.9-9.0	<4	Low-------	0.24	5	3	<1
	16-42	18-30	1.30-1.50	0-6-2.0	0.15-0.17	>8.4	4-8	Low-------	0.28			
	42-60	10-25	1.30-1.50	0.6-2.0	0.13-0.17	>8.4	4-8	Low-------	0.37			
Redbank family--	0-3	8-18	1.20-1.55	2.0-6.0	0.05-0.17	7.4-8.4	<2	Low-------	0.32	5	3	<1
	3-60	8-18	1.15-1.55	2.0-6.0	0.05-0.17	7.9-9.0	<2	Low-------	0.28			
Bankard family--	0-12	5-15	1.20-1.35	6.0-20	0.10-0.12	7.4-8.4	<2	Low-------	0.24	5	3	1-3
	12-60	2-12	1.35-1.55	6.0-20	0.05-0.09	7.4-8.4	<2	Low-------	0.17			
43*:												
Redbank family--	0-3	8-18	1.20-1.55	2.0-6.0	0.05-0.17	7.4-8.4	<2	Low-------	0.32	5	3	<1
	3-60	8-18	1.15-1.55	2.0-6.0	0.05-0.17	7.9-9.0	<2	Low-------	0.28			
Riverwash.												
Green River family---------	0-13	5-10	1.45-1.55	2.0-6.0	0.10-0.12	7.9-8.4	>4	Low-------	0.20	5	8	1-3
	13-21	10-18	1.35-1.45	2.0-6.0	0.10-0.14	7.9-8.4	>4	Low-------	0.24			
	21-60	10-18	1.25-1.35	2.0-6.0	0.13-0.17	7.9-9.0	>4	Low-------	0.32			
44---------------	0-5	8-15	1.30-1.40	2.0-6.0	0.10-0.13	7.9-8.4	<2	Low-------	0.32	5	3	.5-1
Redhouse	5-13	20-35	1.25-1.40	0.6-2.0	0.15-0.18	7.9-9.0	<2	Moderate	0.24			
	13-60	20-35	1.25-1.40	0.6-2.0	0.13-0.16	7.9-9.0	<2	Moderate	0.24			
45*:												
Rizno-----------	0-5	10-17	1.20-1.40	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low-------	0.28	1	3	.5-1
	5-19	10-18	1.20-1.40	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low-------	0.28			
	19	---	---	---	---	---	---	----------	----			
Barx------------	0-9	10-18	1.30-1.40	2.0-6.0	0.14-0.16	7.4-8.4	<2	Low-------	0.43	5	3	1-3
	9-32	20-35	1.30-1.40	0.6-2.0	0.17-0.18	7.4-8.4	<2	Moderate	0.28			
	32-60	20-35	1.40-1.50	0.6-2.0	0.17-0.18	7.9-9.0	<2	Moderate	0.28			

See footnote at end of table.

TABLE 10.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
45*:												
Yarts	0-5	10-18	1.35-1.40	2.0-6.0	0.10-0.14	7.4-8.4	<2	Low	0.20	5	3	<2
	5-60	10-18	1.35-1.40	2.0-6.0	0.10-0.14	7.4-8.4	<2	Low	0.20			
46*:												
Rizno	0-5	10-17	1.20-1.40	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low	0.28	1	3	.5-1
	5-19	10-18	1.20-1.40	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.28			
	19	---	---	---	---	---	---	---	---			
Cahona	0-3	10-20	1.40-1.50	0.6-2.0	0.14-0.16	6.6-8.4	<2	Low	0.37	5	3	1-2
	3-27	20-35	1.30-1.40	0.2-0.6	0.15-0.17	6.6-8.4	<2	Moderate	0.37			
	27-60	10-27	1.40-1.50	0.6-2.0	0.13-0.16	7.9-9.0	<2	Low	0.37			
Rock outcrop.												
47*:												
Rizno	0-3	10-17	1.20-1.40	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low	0.28	1	3	.5-1
	3-13	10-18	1.20-1.40	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.28			
	13	---	---	---	---	---	---	---	---			
Littlenan	0-3	20-40	1.20-1.35	0.06-0.6	0.14-0.16	7.9-8.4	<2	Moderate	0.20	3	4L	<1
	3-29	35-45	1.15-1.30	0.06-0.2	0.16-0.18	7.9-9.0	2-4	High	0.24			
	29	---	---	---	---	---	---	---	---			
Bodot	0-6	20-27	1.15-1.35	0.2-2.0	0.08-0.12	7.4-8.4	<2	Moderate	0.43	2	8	1-2
	6-15	30-40	1.20-1.40	0.06-0.6	0.16-0.18	7.9-8.4	<2	High	0.43			
	15-36	35-60	1.20-1.40	0.06-0.2	0.17-0.18	7.9-8.4	<2	High	0.37			
	36	---	---	---	---	---	---	---	---			
48*:												
Rizno	0-3	10-17	1.20-1.40	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low	0.28	1	3	.5-1
	3-9	10-18	1.20-1.40	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.28			
	9	---	---	---	---	---	---	---	---			
Mido	0-10	2-10	1.40-1.50	6.0-20	0.08-0.10	7.9-9.0	<2	Low	0.37	5	2	<1
	10-60	3-8	1.40-1.50	6.0-20	0.05-0.09	7.9-9.0	<2	Low	0.32			
49*:												
Rizno	0-5	10-17	1.20-1.40	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low	0.28	1	3	.5-1
	5-19	10-18	1.20-1.40	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.28			
	19	---	---	---	---	---	---	---	---			
Rock outcrop.												
50*:												
Rizno	0-3	10-17	1.20-1.40	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low	0.28	1	3	.5-1
	3-13	10-18	1.20-1.40	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.28			
	13	---	---	---	---	---	---	---	---			
Ruinpoint	0-2	15-20	1.15-1.25	2.0-6.0	0.12-0.18	7.4-8.4	<2	Low	0.43	5	3	1-2
	2-13	20-30	1.05-1.20	0.6-2.0	0.15-0.18	7.4-8.4	<2	Moderate	0.43			
	13-60	20-30	1.10-1.25	0.6-2.0	0.15-0.18	7.9-9.0	<2	Moderate	0.43			
Rock outcrop.												
51*:												
Rizno	0-3	10-17	1.20-1.40	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low	0.28	1	3	.5-1
	3-9	10-18	1.20-1.40	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.28			
	9	---	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 10.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodibility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
51*:												
Skos	0-1	15-27	1.25-1.45	0.6-2.0	0.11-0.15	7.4-8.4	<2	Low	0.24	1	5	1-2
	1-6	20-35	1.25-1.45	0.6-2.0	0.08-0.13	7.9-8.4	<2	Moderate	0.15			
	6	---	---	---	---	---	---	---	---			
Rock outcrop.												
52*:												
Rizno	0-3	10-17	1.20-1.40	2.0-6.0	0.10-0.13	7.4-8.4	<2	Low	0.28	1	3	.5-1
	3-13	10-18	1.20-1.40	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.28			
	13	---	---	---	---	---	---	---	---			
Strych	0-12	8-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-8.4	<2	Low	0.20	5	8	1-3
	12-60	14-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-9.0	<2	Low	0.20			
53*:												
Robroost family	0-1	5-15	1.15-1.25	2.0-6.0	0.11-0.16	7.4-8.4	2-8	Low	0.37	5	3	0-1
	1-34	5-15	1.25-1.65	2.0-6.0	0.08-0.12	7.4-8.4	2-8	Low	0.32			
	34-60	5-15	1.25-1.65	2.0-6.0	0.11-0.15	7.4-8.4	2-8	Low	0.37			
Gypsum land.												
54*:												
Rock outcrop.												
Piute	0-9	2-8	1.45-1.50	2.0-6.0	0.08-0.09	7.4-8.4	<2	Low	0.43	1	2	<.5
	9	---	---	---	---	---	---	---	---			
Sheppard	0-6	2-5	1.50-1.60	6.0-20	0.06-0.08	7.4-8.4	<2	Low	0.24	5	2	<.5
	6-60	3-8	1.50-1.60	6.0-20	0.06-0.08	7.4-9.0	<2	Low	0.20			
55*:												
Rock outcrop.												
Piute	0-10	2-8	1.45-1.50	2.0-6.0	0.08-0.09	7.4-8.4	<2	Low	0.43	1	2	<.5
	10	---	---	---	---	---	---	---	---			
Skos	0-3	15-20	1.35-1.50	2.0-6.0	0.07-0.10	7.4-8.4	<2	Low	0.20	1	5	1-2
	3-6	20-35	1.25-1.45	0.6-2.0	0.08-0.13	7.9-8.4	<2	Moderate	0.15			
	6	---	---	---	---	---	---	---	---			
56*:												
Rock outcrop.												
Strych	0-12	8-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-8.4	<2	Low	0.20	5	8	1-3
	12-60	14-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-9.0	<2	Low	0.20			
Rizno	0-5	10-17	1.20-1.40	2.0-6.0	0.08-0.09	7.4-8.4	<2	Low	0.17	1	8	.5-1
	5-19	10-18	1.20-1.40	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.28			
	19	---	---	---	---	---	---	---	---			
57*:												
Rubble land.												
Rock outcrop.												
58*:												
Ruinpoint	0-2	15-20	1.15-1.25	2.0-6.0	0.12-0.18	7.4-8.4	<2	Low	0.43	5	3	1-2
	2-13	20-30	1.05-1.20	0.6-2.0	0.15-0.18	7.4-8.4	<2	Moderate	0.43			
	13-60	20-30	1.10-1.25	0.6-2.0	0.15-0.18	7.9-9.0	<2	Moderate	0.43			

See footnote at end of table.

TABLE 10.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
58*:												
Cahona	0-3	15-25	1.40-1.50	0.6-2.0	0.15-0.17	6.6-8.4	<2	Low	0.37	5	4	1-2
	3-15	20-35	1.30-1.40	0.2-0.6	0.15-0.17	6.6-8.4	<2	Moderate	0.37			
	15-60	10-27	1.40-1.50	0.6-2.0	0.13-0.16	7.9-9.0	<2	Low	0.37			
59*:												
Shalet	0-2	27-35	1.20-1.30	0.2-0.6	0.14-0.18	7.9-9.0	<2	Moderate	0.32	1	4L	<.5
	2-12	27-35	1.20-1.30	0.2-0.6	0.14-0.18	7.9-9.0	<2	Moderate	0.37			
	12	---	---	---	---	---	---	---	---			
Moenkopie	0-1	5-17	1.30-1.40	2.0-6.0	0.06-0.10	7.4-9.0	<2	Low	0.10	1	6	<1
	1-9	7-20	1.35-1.45	2.0-6.0	0.10-0.13	7.4-9.0	<2	Low	0.28			
	9	---	---	---	---	---	---	---	---			
Badland.												
60	0-2	15-20	1.35-1.50	2.0-6.0	0.07-0.10	7.4-8.4	<2	Low	0.20	1	5	1-2
Skos	2-13	20-35	1.25-1.45	0.6-2.0	0.08-0.13	7.9-8.4	<2	Moderate	0.15			
	13	---	---	---	---	---	---	---	---			
61*:												
Skos	0-3	15-20	1.35-1.50	2.0-6.0	0.07-0.10	7.4-8.4	<2	Low	0.20	1	5	1-2
	3-6	20-35	1.25-1.45	0.6-2.0	0.08-0.13	7.9-8.4	<2	Moderate	0.15			
	6	---	---	---	---	---	---	---	---			
Rock outcrop.												
62*:												
Skos	0-1	15-27	1.25-1.45	0.6-2.0	0.11-0.15	7.4-8.4	<2	Low	0.24	1	5	1-2
	1-6	20-35	1.25-1.45	0.6-2.0	0.08-0.13	7.9-8.4	<2	Moderate	0.15			
	6	---	---	---	---	---	---	---	---			
Rock outcrop.												
63*:												
Strych	0-8	8-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-8.4	<2	Low	0.20	5	8	1-3
	8-60	14-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-9.0	<2	Low	0.20			
Rizno	0-5	10-17	1.20-1.40	2.0-6.0	0.08-0.09	7.4-8.4	<2	Low	0.17	1	5	.5-1
	5-19	10-18	1.20-1.40	2.0-6.0	0.10-0.13	7.9-9.0	<2	Low	0.28			
	19	---	---	---	---	---	---	---	---			
Strych, very steep	0-12	8-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-8.4	<2	Low	0.20	5	8	1-3
	12-60	14-18	1.20-1.45	2.0-6.0	0.06-0.11	7.4-9.0	<2	Low	0.20			
64*:												
Strych	0-3	8-26	1.15-1.35	0.6-2.0	0.06-0.12	7.4-8.4	<2	Low	0.24	5	8	1-2
	3-60	10-18	1.15-1.35	2.0-6.0	0.06-0.13	7.4-8.4	<2	Low	0.24			
Skos	0-4	15-27	1.25-1.45	0.6-2.0	0.11-0.15	7.4-8.4	<2	Low	0.24	1	5	1-2
	4-14	20-35	1.25-1.45	0.6-2.0	0.08-0.13	7.9-8.4	<2	Moderate	0.15			
	14	---	---	---	---	---	---	---	---			
Badland.												
65*:												
Strych	0-16	8-26	1.15-1.35	0.6-2.0	0.06-0.12	7.4-8.4	<2	Low	0.24	5	8	1-2
	16-60	10-18	1.15-1.35	2.0-6.0	0.06-0.13	7.4-8.4	<2	Low	0.24			

See footnote at end of table.

TABLE 10.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
									K	T		
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
65*:												
Skos	0-3	15-20	1.35-1.50	2.0-6.0	0.07-0.10	7.4-8.4	<2	Low	0.20	1	5	1-2
	3-19	20-35	1.25-1.45	0.6-2.0	0.08-0.13	7.9-8.4	<2	Moderate	0.15			
	19	---	---	---	---	---	---	---	---			
Badland.												
66	0-7	18-27	1.20-1.30	0.6-2.0	0.15-0.18	7.4-8.4	<4	Low	0.37	5	4L	1-2
Suwanee	7-60	18-35	1.25-1.35	0.2-0.6	0.12-0.18	7.4-8.4	<4	Moderate	0.43			
67	0-8	10-20	1.45-1.55	6.0-20	0.07-0.09	7.4-9.0	<4	Low	0.24	5	3	.5-1
Trail	8-60	10-20	1.45-1.55	6.0-20	0.07-0.09	7.4-9.0	<4	Low	0.24			
68	0-5	10-18	1.35-1.40	2.0-6.0	0.10-0.14	7.4-8.4	<2	Low	0.20	5	3	<2
Yarts	5-60	10-18	1.35-1.40	2.0-6.0	0.10-0.14	7.4-8.4	<2	Low	0.20			

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--SOIL AND WATER FEATURES

("Flooding" and "bedrock" and terms such as "rare" and "thick" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydrologic group	Flooding	Bedrock		Cemented pan		Risk of corrosion	
		Frequency	Depth	Hardness	Depth	Thickness	Uncoated steel	Concrete
			In		In			
1*:								
Arches	D	None	10-20	Hard	---	---	High	Low.
Rizno	D	None	10-20	Hard	---	---	High	Moderate.
Mido	A	None	>60	---	---	---	High	Moderate.
2*:								
Badland.								
Rock outcrop.								
3*:								
Bankard family	A	Occasional	>60	---	---	---	High	Moderate.
Riverwash.								
4*:								
Bankard family	A	Occasional	>60	---	---	---	High	Moderate.
Sheppard	A	None	>60	---	---	---	High	Moderate.
5	B	None	>60	---	---	---	High	Low.
Barx								
6*:								
Barx	B	None	>60	---	---	---	High	Low.
Strych	B	None	>60	---	---	---	High	Moderate.
Skos	D	None	4-20	Hard	---	---	High	Moderate.
7*:								
Bluechief	C	None	20-40	Hard	---	---	High	Moderate.
Limeridge	D	None	20-40	Hard	10-20	Thick	High	Moderate.
Nakai	B	None	>40	Hard	>40	Thin	High	Moderate.
8*:								
Bodot	C	None	20-40	Soft	---	---	High	Moderate.
Strych	B	None	>60	---	---	---	High	Moderate.
Skos	D	None	4-20	Hard	---	---	High	Moderate.
9*:								
Bookcliff	B	None	40-60	Hard	---	---	High	Moderate.
Bookcliff, dry	B	None	40-60	Hard	---	---	High	Moderate.
10*:								
Bookcliff	B	None	40-60	Hard	---	---	High	Moderate.
Skos	D	None	4-20	Hard	---	---	High	Moderate.

See footnote at end of table.

TABLE 11.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding	Bedrock		Cemented pan		Risk of corrosion	
		Frequency	Depth	Hardness	Depth	Thickness	Uncoated steel	Concrete
			In		In			
10*:								
Strych	B	None	>60	---	---	---	High	Moderate.
11---------- Cahona	B	None	>60	---	---	---	High	Low.
12, 13---------- Gilco	B	Rare	>60	---	---	---	High	Moderate.
14*:								
Gilco	B	Rare	>60	---	---	---	High	Moderate.
Trail	A	Rare	>60	---	---	---	High	Low.
15*:								
Green River family	C	Occasional	>60	---	---	---	High	Moderate.
Bankard family	A	Occasional	>60	---	---	---	High	Moderate.
Riverwash.								
16---------- Kiln	D	None	10-20	Hard	---	---	Moderate	Low.
17---------- Limeridge	D	None	20-40	Hard	10-20	Thick	High	Moderate.
18*:								
Littlenan	C	None	20-40	Soft	---	---	High	Moderate.
Moenkopie	D	None	5-20	Hard	---	---	High	Low.
Recapture	B	None	>60	---	---	---	High	Moderate.
19*:								
Littlenan	C	None	20-40	Soft	---	---	High	Moderate.
Ruinpoint	B	None	>60	---	---	---	High	Moderate.
Rizno	D	None	10-20	Hard	---	---	High	Moderate.
20*:								
Mido	A	None	>60	---	---	---	High	Moderate.
Riverwash.								
21*:								
Mido	A	None	>60	---	---	---	High	Moderate.
Rizno	D	None	10-20	Hard	---	---	High	Moderate.
22*:								
Mido	A	None	>60	---	---	---	High	Moderate.
Rock outcrop.								
Arches	D	None	10-20	Hard	---	---	High	Low.
23---------- Milok	B	None	>60	---	---	---	High	High.

See footnote at end of table.

TABLE 11.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding	Bedrock		Cemented pan		Risk of corrosion	
		Frequency	Depth	Hardness	Depth	Thickness	Uncoated steel	Concrete
			In		In			
24*:								
Milok	B	None	>60	---	---	---	High	High.
Mivida	B	None	>60	---	---	---	High	Moderate.
25*:								
Milok	B	None	>60	---	---	---	High	High.
Skos	D	None	4-10	Hard	---	---	High	Moderate.
Strych	B	None	>60	---	---	---	High	Moderate.
26---Mivida	B	None	>60	---	---	---	High	Moderate.
27*:								
Mivida	B	None	>60	---	---	---	High	Moderate.
Pastern	D	None	>60	---	7-20	Thick	High	Moderate.
Rock outcrop.								
28*:								
Moenkopie	D	None	5-20	Hard	---	---	High	Low.
Moenkopie, warm	D	None	5-20	Hard	---	---	High	Low.
29*:								
Moenkopie	D	None	5-20	Hard	---	---	High	Low.
Rock outcrop.								
30, 31---Moffat	B	None	>60	---	---	---	High	Moderate.
32*:								
Myton family	B	None	>60	---	---	---	High	Moderate.
Nakai	B	None	>60	---	---	---	High	Moderate.
Redhouse	B	None	>60	---	---	---	High	Moderate.
33*:								
Myton family	B	None	>60	---	---	---	High	Moderate.
Rock outcrop.								
34*:								
Myton family	B	None	>60	---	---	---	High	Moderate.
Shalet	D	None	4-20	Soft	---	---	High	Moderate.
Badland.								
35*:								
Myton family	B	None	>60	---	---	---	High	Moderate.
Skos	D	None	10-20	Hard	---	---	High	Moderate.
Rock outcrop.								

See footnote at end of table.

TABLE 11.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding	Bedrock		Cemented pan		Risk of corrosion	
		Frequency	Depth	Hardness	Depth	Thickness	Uncoated steel	Concrete
			In		In			
36---------- Nakai	B	None----------	>40	Hard	40-60	Thin	High-----	Moderate.
37*:								
Nakai----------	B	None----------	>60	---	---	---	High-----	Moderate.
Moffat----------	B	None----------	>60	---	---	---	High-----	Moderate.
Sheppard---------	A	None----------	>60	---	---	---	High-----	Moderate.
38*---------- Oljeto family	A	None----------	>60	---	---	---	High-----	Moderate.
39*:								
Pastern----------	D	None----------	>60	---	7-20	Thick	High-----	Moderate.
Rizno----------	D	None----------	4-10	Hard	---	---	High-----	Moderate.
Rock outcrop.								
40*:								
Piute----------	D	None----------	5-10	Hard	---	---	High-----	Moderate.
Sheppard---------	A	None----------	>60	---	---	---	High-----	Moderate.
Rock outcrop.								
41---------- Recapture	B	Rare----------	>60	---	---	---	High-----	Moderate.
42*:								
Recapture--------	B	None----------	>60	---	---	---	High-----	Moderate.
Redbank family---	B	Occasional------	>60	---	---	---	High-----	Moderate.
Bankard family---	A	Occasional------	>60	---	---	---	High-----	Moderate.
43*:								
Redbank family---	B	Occasional------	>60	---	---	---	High-----	Moderate.
Riverwash.								
Green River family----------	C	Occasional------	>60	---	---	---	High-----	Moderate.
44---------- Redhouse	B	None----------	>60	---	---	---	High-----	Moderate.
45*:								
Rizno----------	D	None----------	10-20	Hard	---	---	High-----	Moderate.
Barx----------	B	None----------	>60	---	---	---	High-----	Low.
Yarts----------	B	None----------	>60	---	---	---	High-----	Moderate.
46*:								
Rizno----------	D	None----------	10-20	Hard	---	---	High-----	Moderate.
Cahona----------	B	None----------	>60	---	---	---	High-----	Low.
Rock outcrop.								

See footnote at end of table.

TABLE 11.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding	Bedrock		Cemented pan		Risk of corrosion	
		Frequency	Depth	Hardness	Depth	Thickness	Uncoated steel	Concrete
			In		In			
47*:								
Rizno	D	None	10-20	Hard	---	---	High	Moderate.
Littlenan	C	None	20-40	Soft	---	---	High	Moderate.
Bodot	C	None	20-40	Soft	---	---	High	Moderate.
48*:								
Rizno	D	None	4-10	Hard	---	---	High	Moderate.
Mido	A	None	>60	---	---	---	High	Moderate.
49*:								
Rizno	D	None	10-20	Hard	---	---	High	Moderate.
Rock outcrop.								
50*:								
Rizno	D	None	10-20	Hard	---	---	High	Moderate.
Ruinpoint	B	None	>60	---	---	---	High	Moderate.
Rock outcrop.								
51*:								
Rizno	D	None	4-10	Hard	---	---	High	Moderate.
Skos	D	None	4-10	Hard	---	---	High	Moderate.
Rock outcrop.								
52*:								
Rizno	D	None	10-20	Hard	---	---	High	Moderate.
Strych	B	None	>60	---	---	---	High	Moderate.
53*:								
Robroost family	B	None	>40	Hard	---	---	High	Moderate.
Gypsum land.								
54*:								
Rock outcrop.								
Piute	D	None	5-10	Hard	---	---	High	Moderate.
Sheppard	A	None	>60	---	---	---	High	Moderate.
55*:								
Rock outcrop.								
Piute	D	None	5-10	Hard	---	---	High	Moderate.
Skos	D	None	4-10	Hard	---	---	High	Moderate.
56*:								
Rock outcrop.								
Strych	B	None	>60	---	---	---	High	Moderate.
Rizno	D	None	10-20	Hard	---	---	High	Moderate.

See footnote at end of table.

TABLE 11.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydrologic group	Flooding	Bedrock		Cemented pan		Risk of corrosion	
		Frequency	Depth	Hardness	Depth	Thickness	Uncoated steel	Concrete
			In		In			
57*:								
Rubble land.								
Rock outcrop.								
58*:								
Ruinpoint	B	None	>60	---	---	---	High	Moderate.
Cahona	B	None	>60	---	---	---	High	Low.
59*:								
Shalet	D	None	5-20	Soft	---	---	High	Moderate.
Moenkopie	D	None	5-20	Hard	---	---	High	Low.
Badland.								
60--Skos	D	None	10-20	Hard	---	---	High	Moderate.
61*, 62*:								
Skos	D	None	4-10	Hard	---	---	High	Moderate.
Rock outcrop.								
63*:								
Strych	B	None	>60	---	---	---	High	Moderate.
Rizno	D	None	10-20	Hard	---	---	High	Moderate.
Strych, very steep	B	None	>60	---	---	---	High	Moderate.
64*, 65*:								
Strych	B	None	>60	---	---	---	High	Moderate.
Skos	D	None	10-20	Hard	---	---	High	Moderate.
Badland.								
66--Suwanee	B	Rare	>60	---	---	---	High	Moderate.
67--Trail	A	Rare	>60	---	---	---	High	Low.
68--Yarts	B	None	>60	---	---	---	High	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Arches	Mixed, mesic Lithic Torripsamments
Bankard family	Sandy, mixed, mesic Ustic Torrifluvents
Barx	Fine-loamy, mixed, mesic Ustollic Haplargids
Bluechief	Coarse-loamy, mixed, mesic Typic Calciorthids
Bodot	Fine, montmorillonitic (calcareous), mesic Ustic Torriorthents
Bookcliff	Fine-loamy, mixed Typic Argiborolls
Cahona	Fine-silty, mixed, mesic Ustollic Haplargids
Gilco	Coarse-loamy, mixed (calcareous), mesic Typic Torrifluvents
Green River family	Coarse-loamy, mixed (calcareous), mesic Aquic Ustifluvents
Kiln	Loamy, mixed Lithic Argiborolls
Limeridge	Loamy, mixed, mesic, shallow Typic Paleorthids
Littlenan	Fine, montmorillonitic, mesic Ustertic Camborthids
Mido	Mixed, mesic Ustic Torripsamments
Milok	Coarse-loamy, mixed, mesic Ustollic Calciorthids
Mivida	Coarse-loamy, mixed, mesic Ustollic Calciorthids
Moenkopie	Loamy, mixed (calcareous), mesic Lithic Torriorthents
Moffat	Coarse-loamy, mixed, mesic Typic Calciorthids
Myton family	Loamy-skeletal, mixed (calcareous), mesic Typic Torriorthents
Nakai	Coarse-loamy, mixed, mesic Typic Calciorthids
Oljeto family	Sandy-skeletal, mixed, mesic Typic Calciorthids
Pastern	Loamy, mixed, mesic, shallow Ustollic Paleorthids
Piute	Sandy, mixed, mesic Lithic Torriorthents
Recapture	Fine-loamy, mixed, mesic Typic Natrargids
Redbank family	Coarse-loamy, mixed (calcareous), mesic Ustic Torrifluvents
Redhouse	Fine-loamy, mixed, mesic Typic Calciorthids
Rizno	Loamy, mixed (calcareous), mesic Lithic Ustic Torriorthents
Robroost family	Coarse-loamy, mixed, mesic Cambic Gypsiorthids
Ruinpoint	Fine-silty, mixed, mesic Ustollic Camborthids
Shalet	Loamy, mixed (calcareous), mesic, shallow Typic Torriorthents
Sheppard	Mixed, mesic Typic Torripsamments
Skos	Loamy-skeletal, mixed (calcareous), mesic Lithic Ustic Torriorthents
Strych	Loamy-skeletal, mixed, mesic Ustollic Calciorthids
Suwanee	Fine-loamy, mixed (calcareous), mesic Ustic Torrifluvents
Trail	Sandy, mixed, mesic Typic Torrifluvents
Yarts	Coarse-loamy, mixed (calcareous), mesic Ustic Torriorthents

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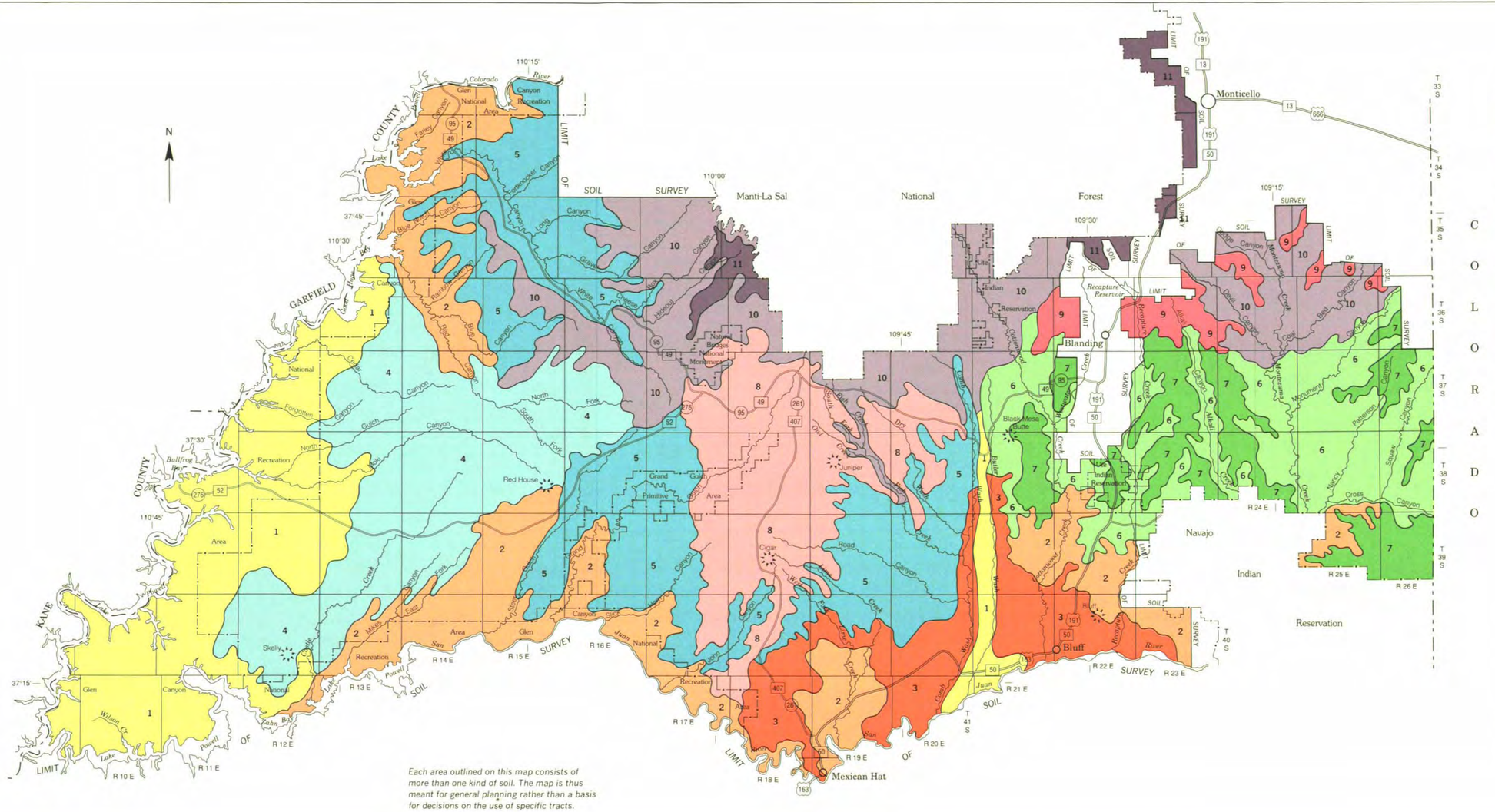


Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

SOIL LEGEND*

ROCK OUTCROP AND DOMINANTLY WELL DRAINED AND SOMEWHAT EXCESSIVELY DRAINED, NEARLY LEVEL TO STEEP SOILS IN AN ARID CLIMATE ZONE

- 1 Rock outcrop-Piute-Sheppard
- 2 Moenkopie-Rock outcrop-Myton family
- 3 Nakai-Limeridge-Bluechief

ROCK OUTCROP AND DOMINANTLY WELL DRAINED AND EXCESSIVELY DRAINED, NEARLY LEVEL TO VERY STEEP SOILS IN A SEMIARID CLIMATE ZONE

- 4 Rock outcrop-Skos-Piute-Mido
- 5 Skos-Myton family-Rizno-Milok
- 6 Rizno-Littlenan-Bodot
- 7 Ruinpoint-Rizno-Cahona

ROCK OUTCROP AND DOMINANTLY WELL DRAINED, NEARLY LEVEL TO VERY STEEP SOILS IN A SUBHUMID OR DRY, SUBHUMID CLIMATE ZONE

- 8 Barx-Rizno-Yarts
- 9 Cahona-Rizno-Strych
- 10 Rizno-Strych-Rock outcrop
- 11 Skos-Strych-Bookcliff

* The units on this legend are described in the text under the heading "General Soil Map Units."

Compiled 1992

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
UTAH AGRICULTURAL EXPERIMENT STATION

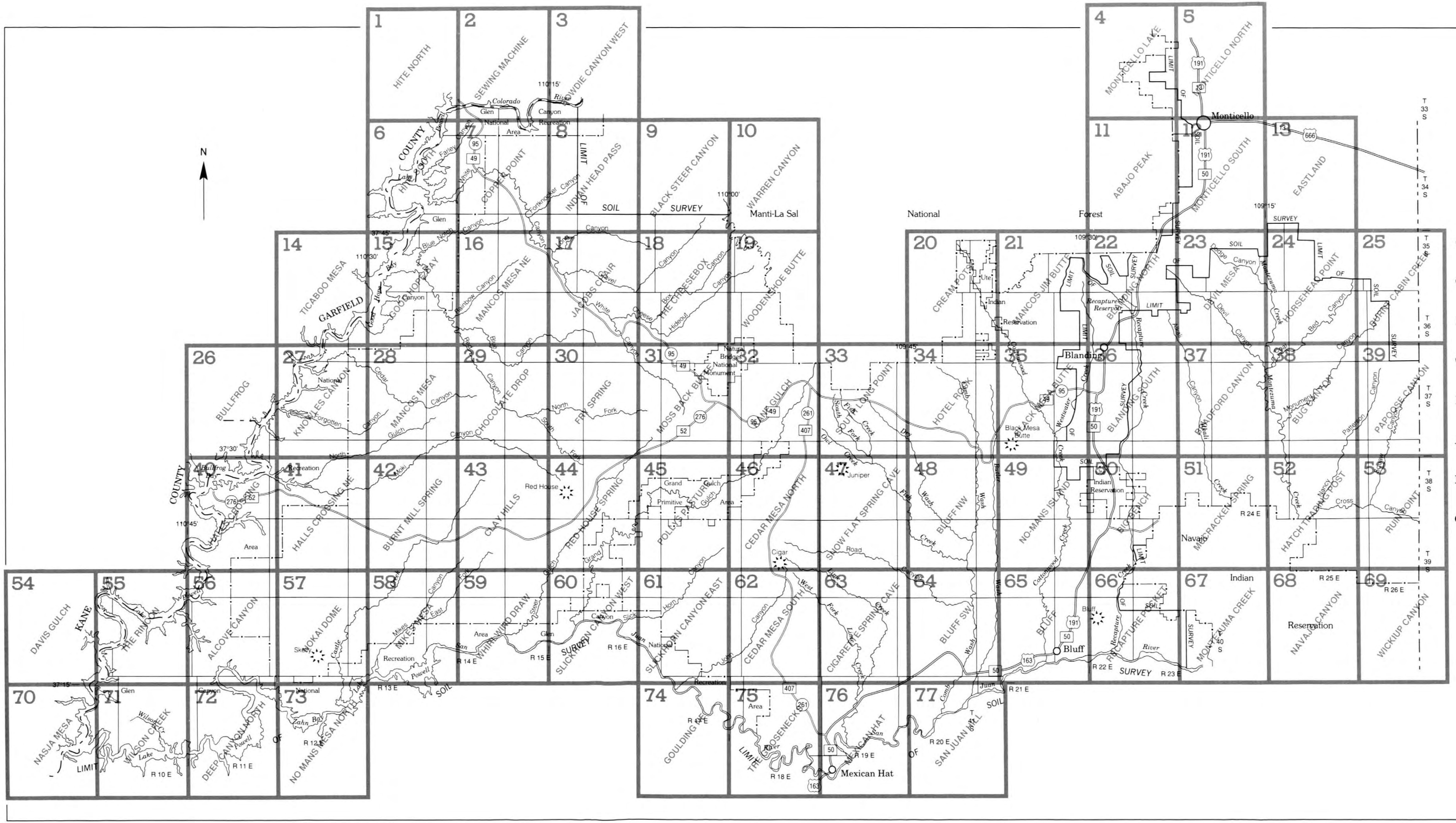
GENERAL SOIL MAP

SAN JUAN COUNTY, UTAH, CENTRAL PART

Scale 1:380,160

1 0 1 2 3 4 5 6 Miles

1 0 6 12 Km



INDEX TO MAP SHEETS
SAN JUAN COUNTY, UTAH, CENTRAL PART

Scale 1:380,160

1 0 1 2 3 4 5 6 Miles

1 0 6 12 Km

SOIL LEGEND

1 Arches-Rizno-Mido complex

2 Badland-Rock outcrop complex
3 Bankard family-Riverwash complex
4 Bankard family-Sheppard complex
5 Barx very fine sandy loam, 1 to 4 percent slopes
6 Barx-Strych-Skos complex
7 Bluechief-Limeridge-Nakai complex, 1 to 6 percent slopes
8 Bodot-Strych-Skos association
9 Bookcliff-Bookcliff, dry, complex
10 Bookcliff-Skos-Strych complex

11 Cahona very fine sandy loam, 1 to 8 percent slopes

12 Gilco silt loam, 0 to 1 percent slopes
13 Gilco silty clay loam, 0 to 1 percent slopes
14 Gilco-Trail complex, 0 to 2 percent slopes
15 Green River-Bankard families-Riverwash association, 0 to 4 percent slopes

16 Kiln loam, 2 to 15 percent slopes

17 Limeridge gravelly very fine sandy loam, 4 to 12 percent slopes
18 Littlenan-Moenkopie-Recapture complex
19 Littlenan-Ruinpoint-Rizno association, 1 to 20 percent slopes

20 Mido-Riverwash complex
21 Mido-Rizno complex
22 Mido-Rock outcrop-Arches complex
23 Milok fine sandy loam, 1 to 6 percent slopes
24 Milok-Mivida complex
25 Milok-Skos-Strych complex
26 Mivida fine sandy loam, 1 to 6 percent slopes
27 Mivida-Pastern-Rock outcrop complex, 1 to 8 percent slopes
28 Moenkopie-Moenkopie, warm, complex
29 Moenkopie-Rock outcrop complex
30 Moffat fine sandy loam, 0 to 2 percent slopes
31 Moffat loamy fine sand, 2 to 5 percent slopes
32 Myton family-Nakai-Redhouse complex
33 Myton family-Rock outcrop complex
34 Myton family-Shalet-Badland complex
35 Myton family-Skos-Rock outcrop association

36 Nakai fine sandy loam, 1 to 6 percent slopes
37 Nakai-Moffat-Sheppard association

38 Oljeto family, 10 to 40 percent slopes

39 Pastern-Rizno-Rock outcrop complex
40 Piute-Sheppard-Rock outcrop association

41 Recapture fine sandy loam, 0 to 2 percent slopes
42 Recapture-Redbank family-Bankard family association, 0 to 8 percent slopes
43 Redbank family-Riverwash-Green River family association, 0 to 4 percent slopes
44 Redhouse fine sandy loam, 2 to 8 percent slopes
45 Rizno-Barx-Yarts complex
46 Rizno-Cahona-Rock outcrop complex
47 Rizno-Littlenan-Bodot association
48 Rizno-Mido complex
49 Rizno-Rock outcrop complex
50 Rizno-Ruinpoint-Rock outcrop complex
51 Rizno-Skos-Rock outcrop complex
52 Rizno-Strych association
53 Robroost family-Gypsum land complex
54 Rock outcrop-Piute-Sheppard complex
55 Rock outcrop-Piute-Skos association
56 Rock outcrop-Strych-Rizno association
57 Rubble land-Rock outcrop complex
58 Ruinpoint-Cahona association

59 Shalet-Moenkopie-Badland complex
60 Skos channery fine sandy loam, 4 to 30 percent slopes
61 Skos-Rock outcrop complex
62 Skos, warm-Rock outcrop complex
63 Strych-Rizno-Strych, very steep, association
64 Strych-Skos-Badland complex
65 Strych, warm-Skos, warm-Badland complex
66 Suwanee silt loam, 1 to 5 percent slopes

67 Trail fine sandy loam, 0 to 1 percent slopes

68 Yarts fine sandy loam, 5 to 30 percent slopes

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES
- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline and neatline
- AD HOC BOUNDARY (label)
- Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER
(sections and land grants)

ROADS
- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS
- Federal (173)
- State (28)
- County, farm or ranch (1283)

(normally not shown)

DAMS
- Medium or Small

PITS
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES
- Church
- School

WATER FEATURES

DRAINAGE
- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end

LAKES, PONDS AND RESERVOIRS
- Perennial

MISCELLANEOUS WATER FEATURES
- Spring

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS (14, 51)

ESCARPMENTS

MISCELLANEOUS
- Gravelly spot (less than 10 acres)
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Sandy spot
- Stony spot, very stony spot

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NO. 1
SOIL SURVEY OF SAN JUAN COUNTY, UTAH, CENTRAL PART

2 290 000 FEET
110°22'30"
38°00'
480 000 FEET
T. 33 S.
T. 33 S.
450 000 FEET
GARFIELD COUNTY
COLORADO RIVER
NARROW CANYON
GLEN CANYON NATIONAL RECREATION AREA
water
29
28
29
28
(Joins sheet 2)
37°52'30"
110°30'
R. 13 E. | R. 14 E.
(Joins sheet 6)
2 320 000 FEET

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 1

R. 14 E. | R. 15 E.

2 330 000 FEET

110°15'
38°00'

4 480 000 FEET

T. 33 S.

T. 33 S.

COLORADO RIVER

GARFIELD COUNTY

NARROW CANYON

CATARACT CANYON

GLEN CANYON NATIONAL RECREATION AREA

MESA

DRY

95

29 28 35 51 23

(Joins sheet 1)

(Joins sheet 3)

(Joins sheet 7)

37°52'30"
110°22'30"

R. 14 E. | R. 15 E.

2 360 000 FEET

4 480 000 FEET

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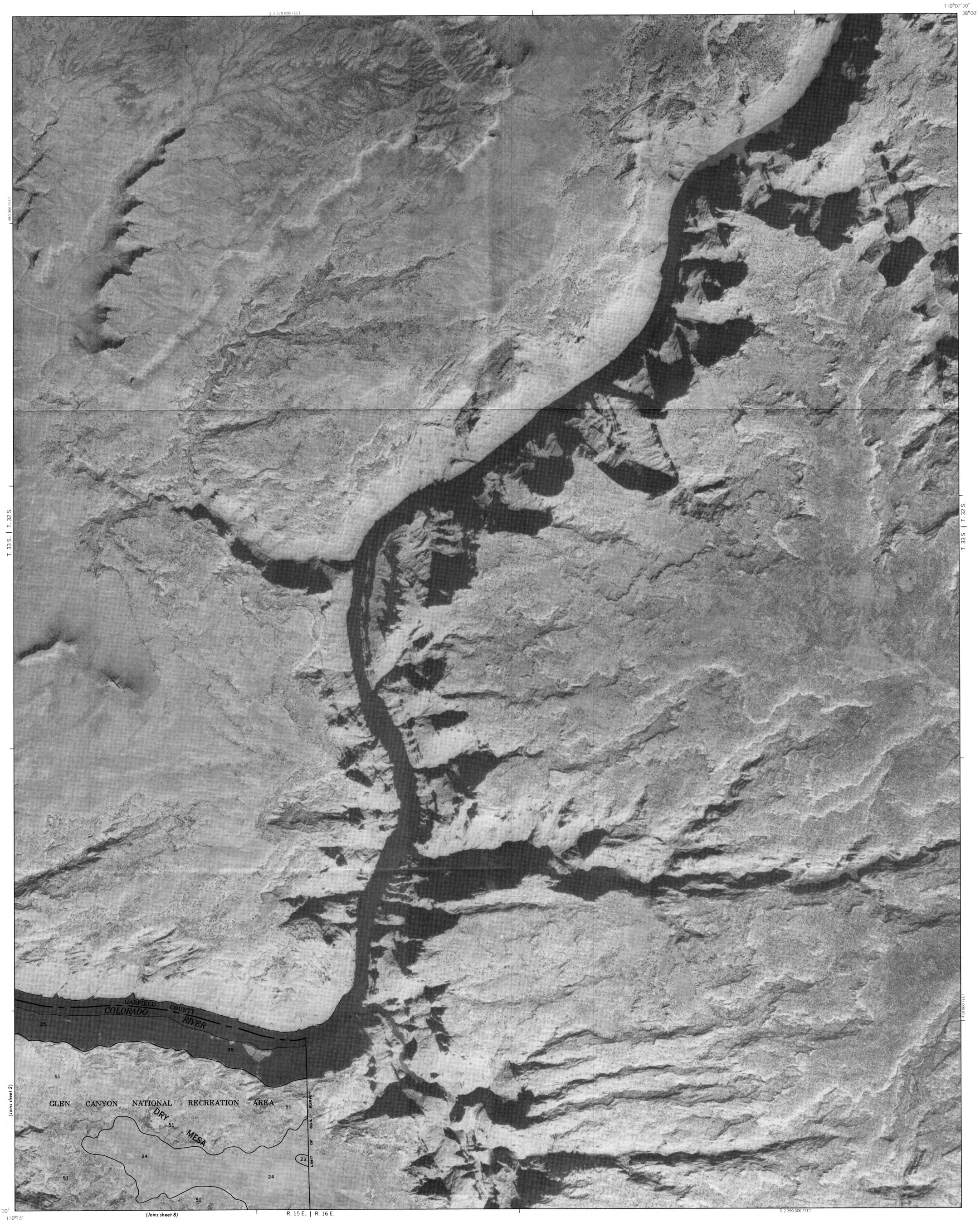
1 3/4 1/2 1/4 0 1 2 MILES

1 0.5 0 1 2 KILOMETERS

SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 2



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1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 3

2580 000 FEET
R. 22 E. | R. 23 E.
109°22'30"
38°00'
490 000 FEET
T. 32 S. | T. 33 S.
T. 33 S. | T. 32 S.
LIMIT OF SOIL SURVEY
NATIONAL FOREST BOUNDARY
Spring Creek
Clay Draw
Gordon Reservoir
(Joins sheet 5)
2 490 000 FEET
(Joins sheet 11)
2 610 000 FEET
37°52'30"
109°30'
R. 22 E. | R. 23 E.

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1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 4

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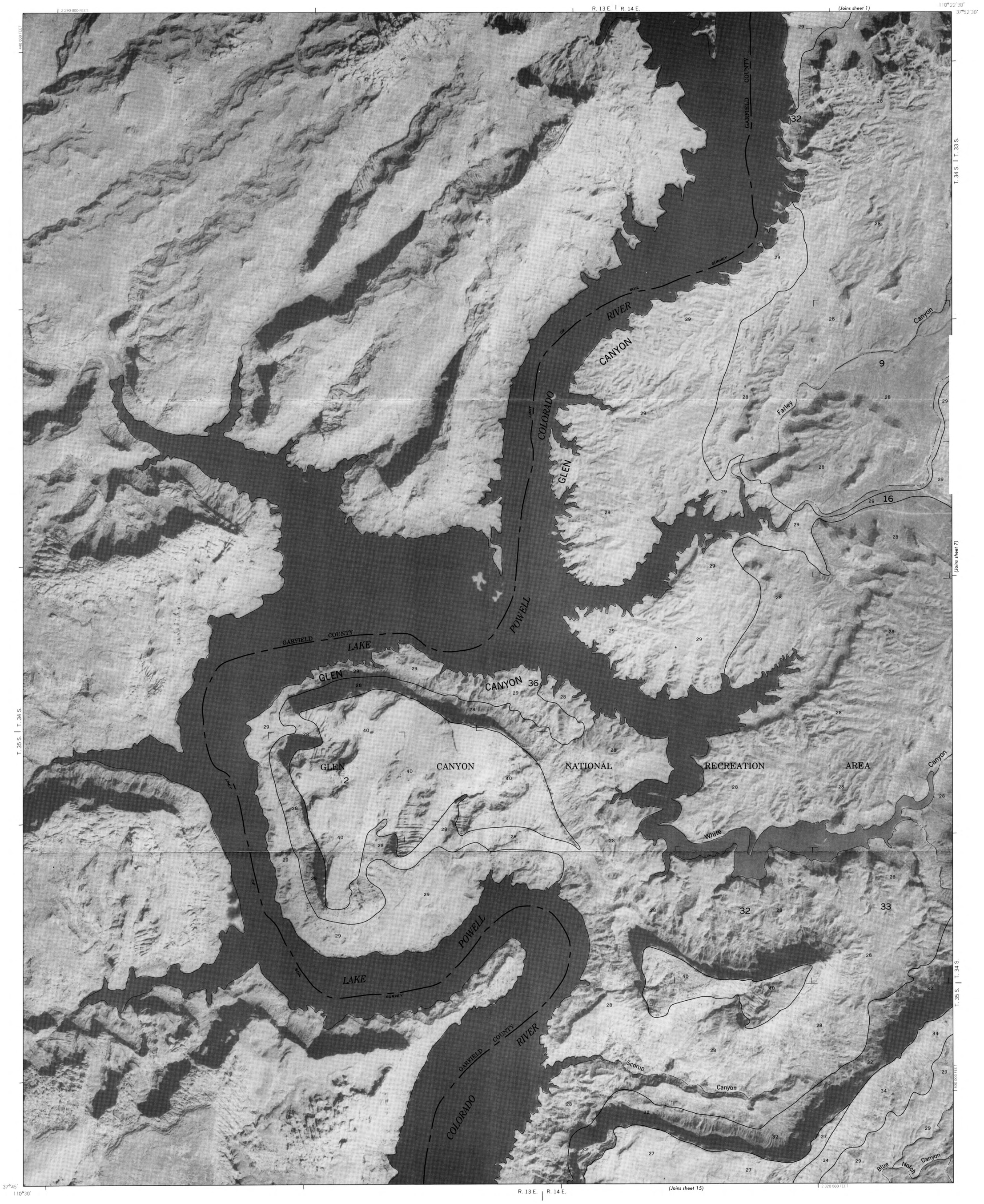
1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 5



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1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 6

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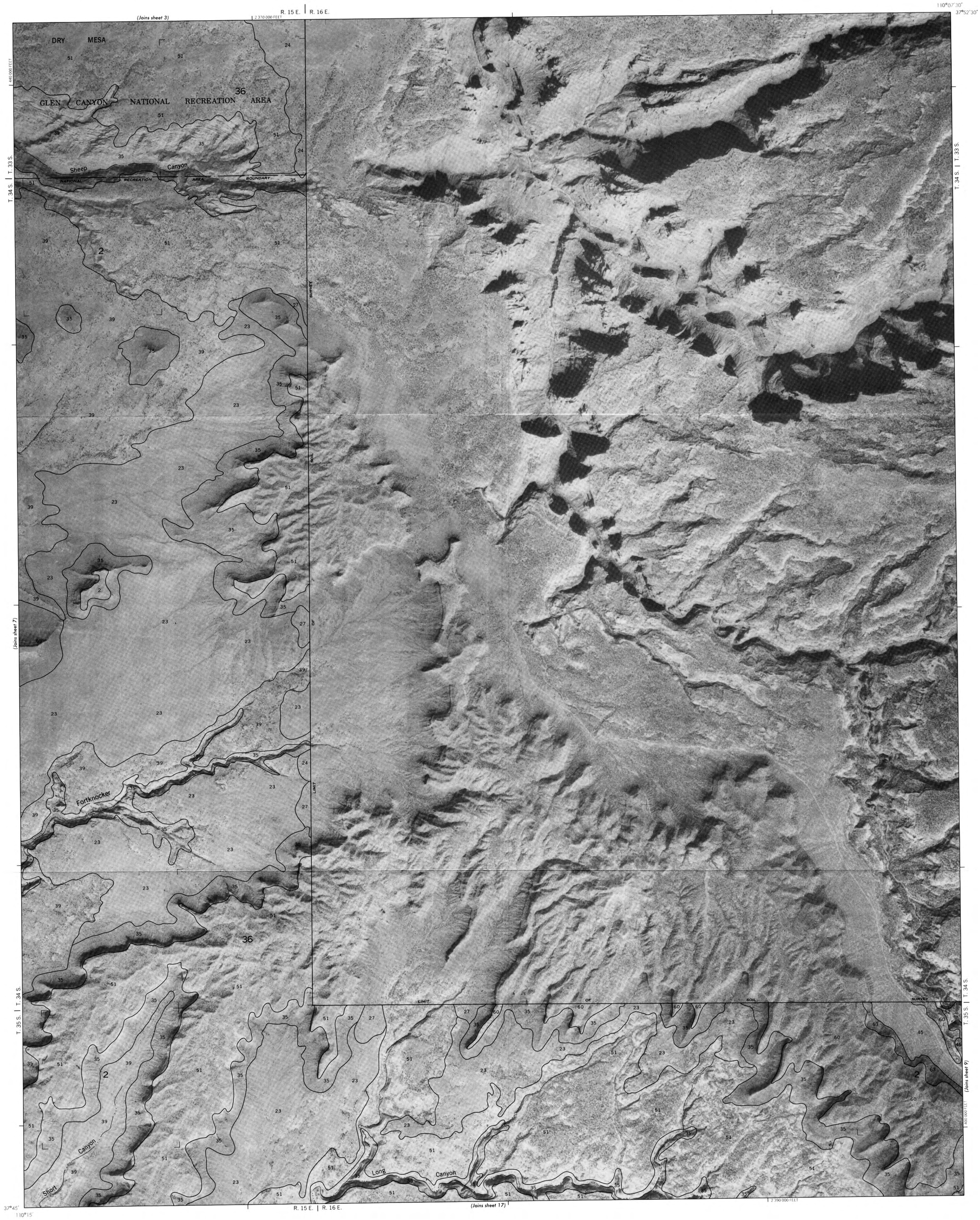
1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 7



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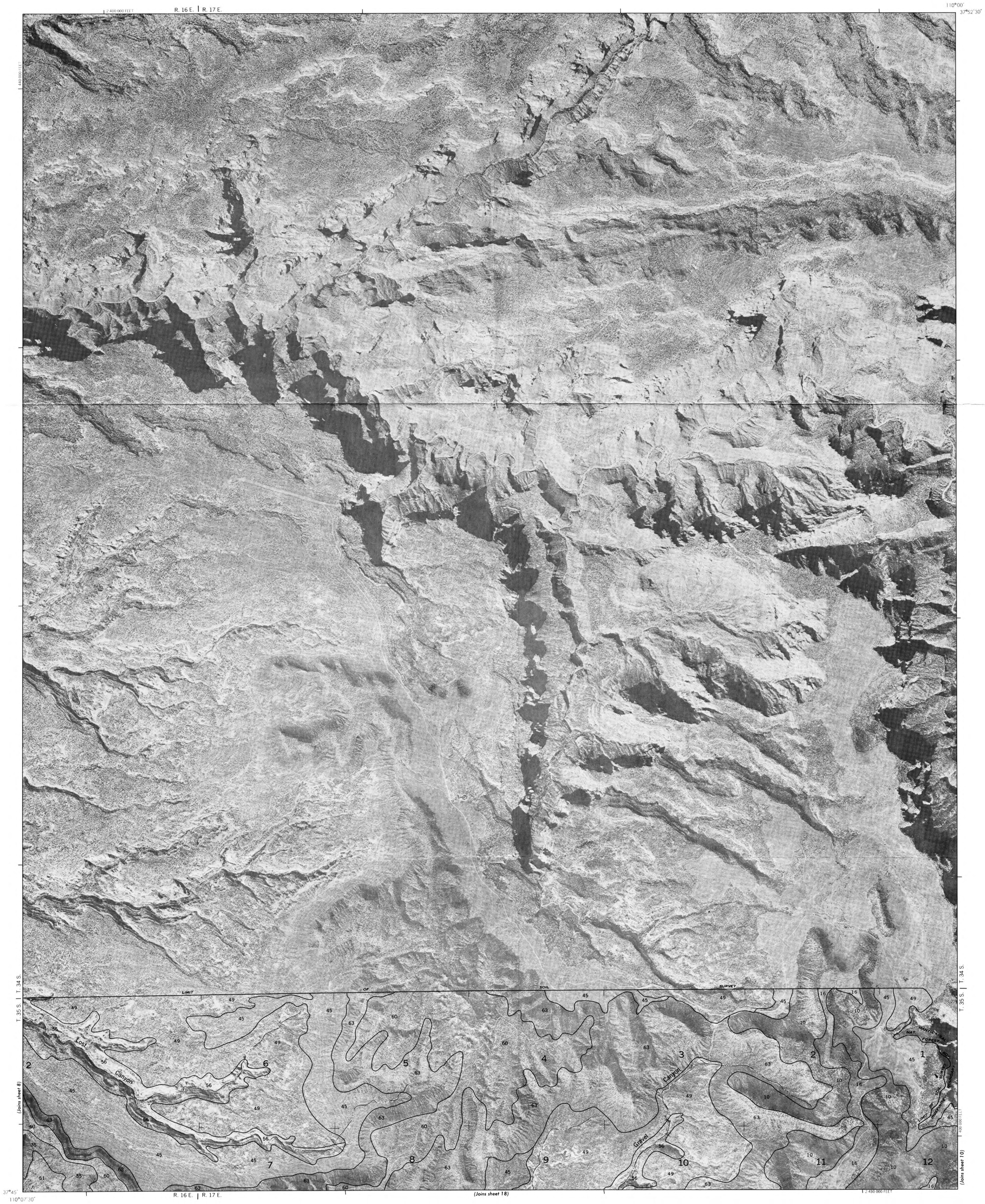
1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 8

N



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1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 9

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1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 10

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1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 11

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1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 12

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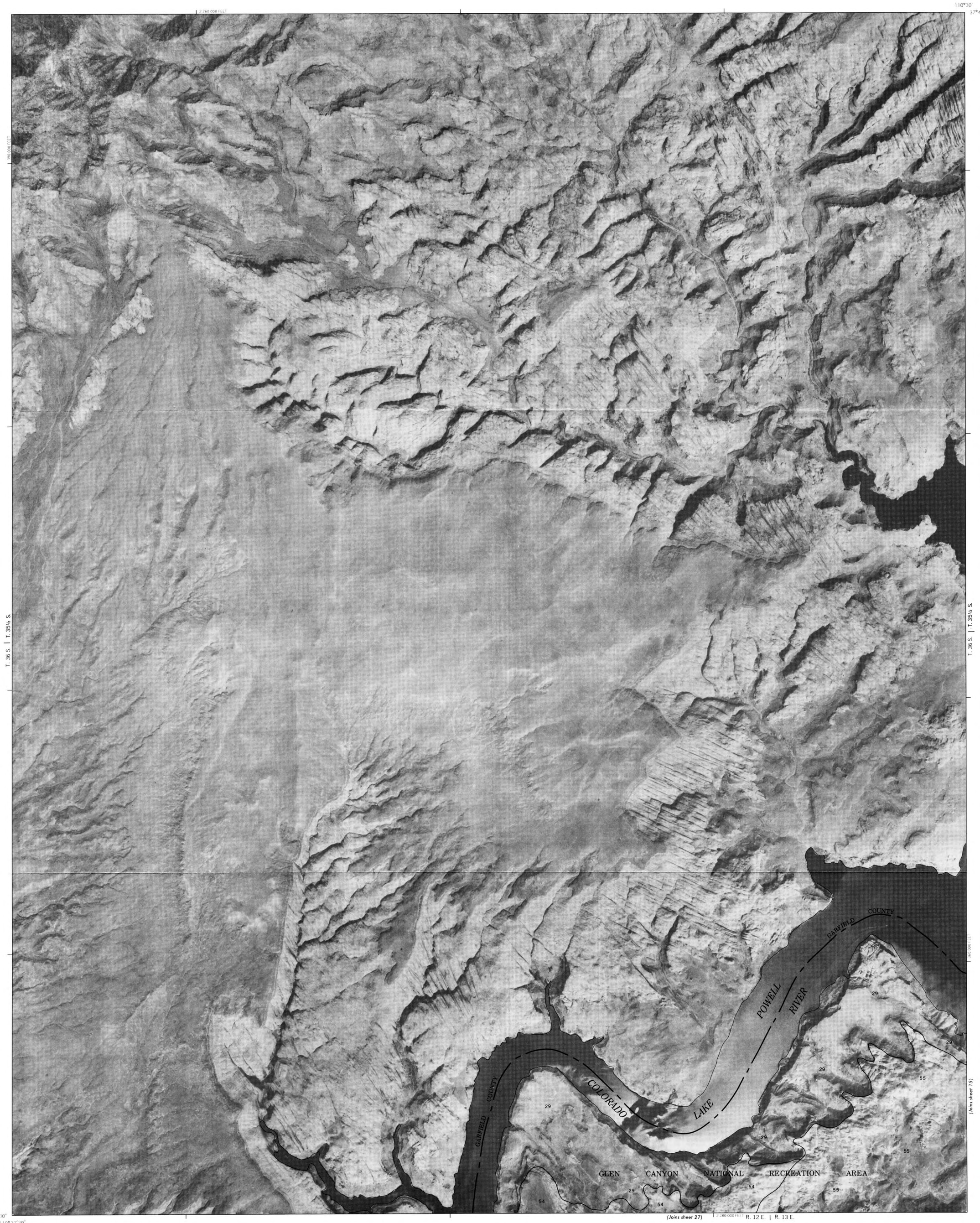
1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 13

N



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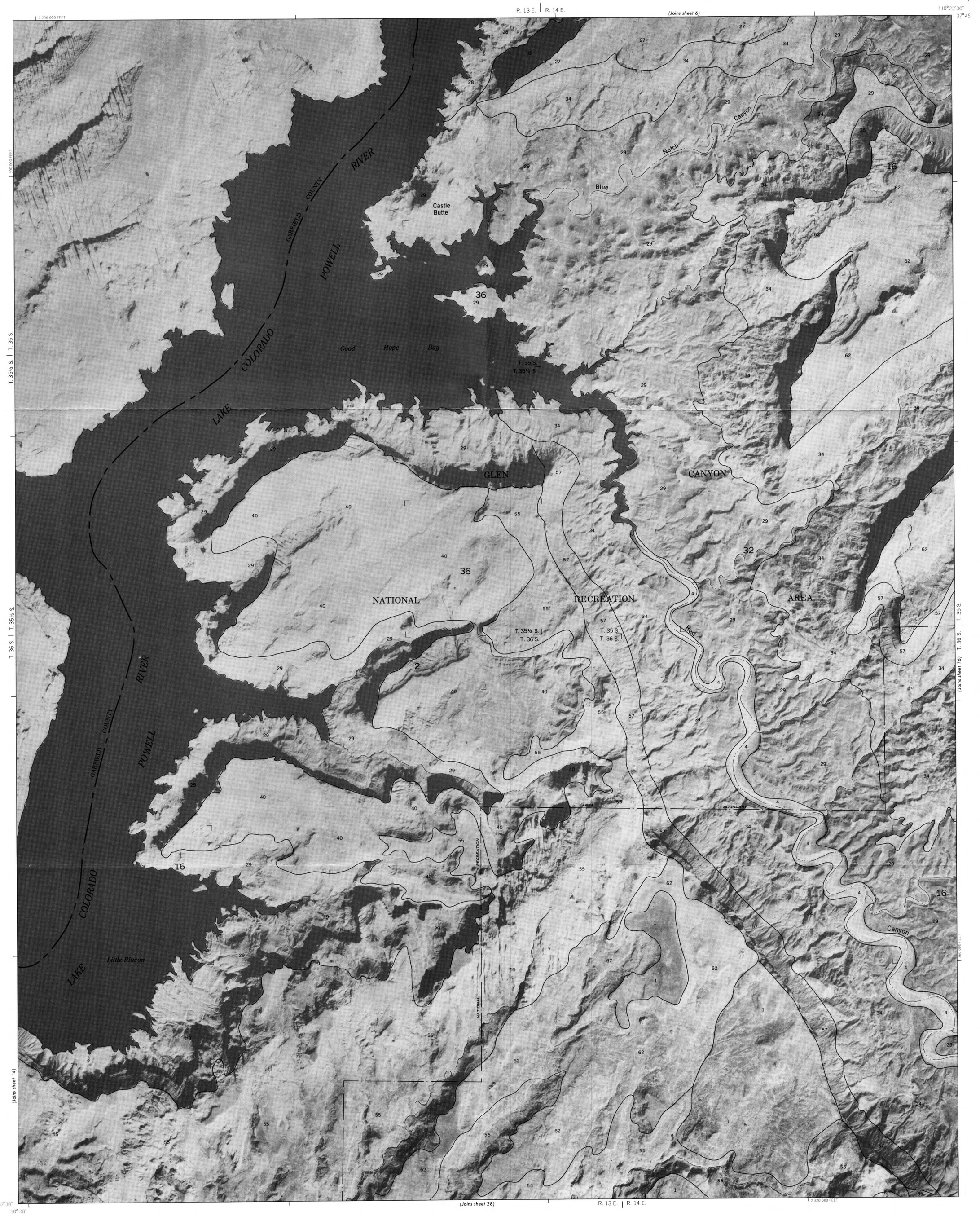
1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 14

N



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 15

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 16

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 17

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 18

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

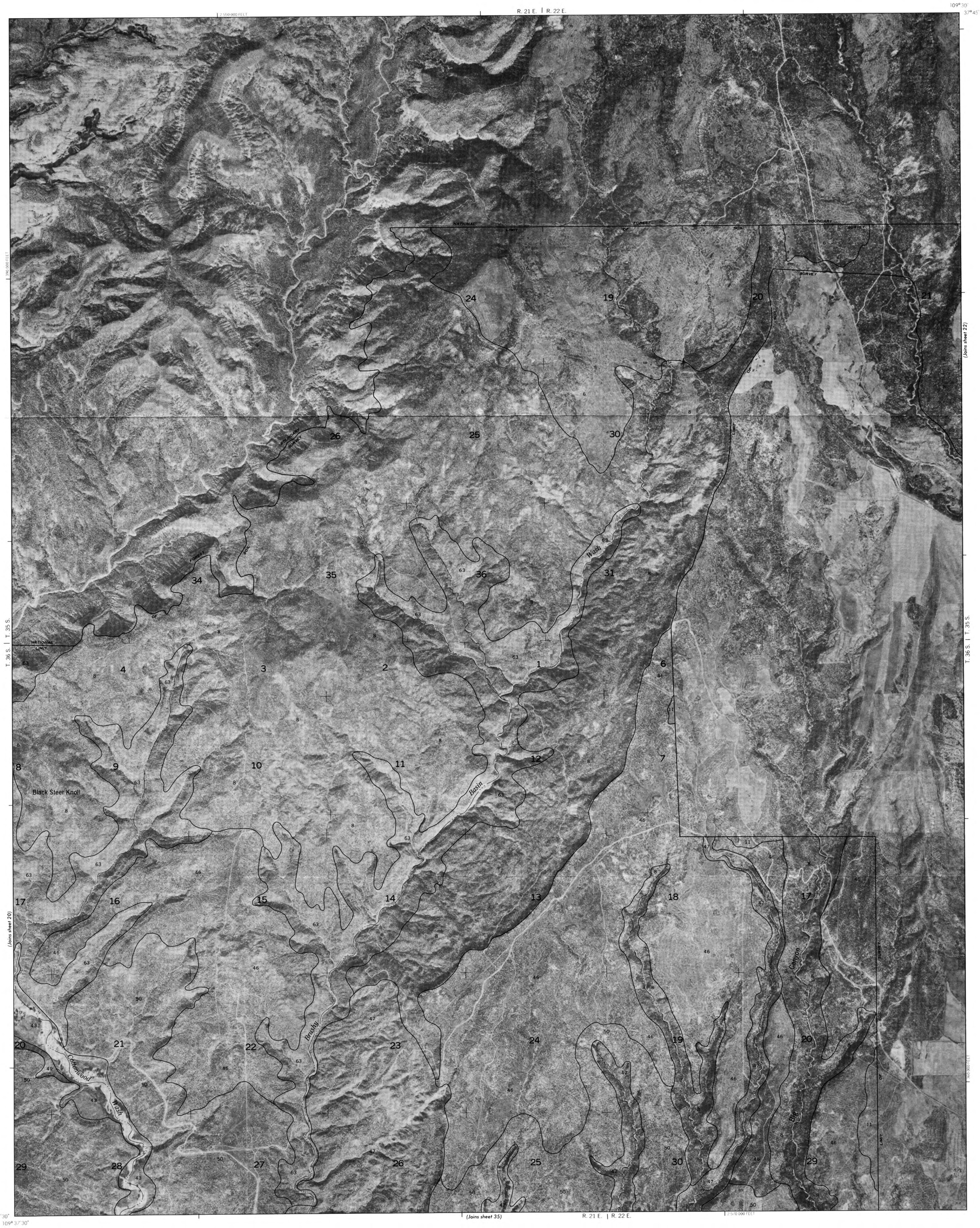
SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 19

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 20

N



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 21

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1 24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 22

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

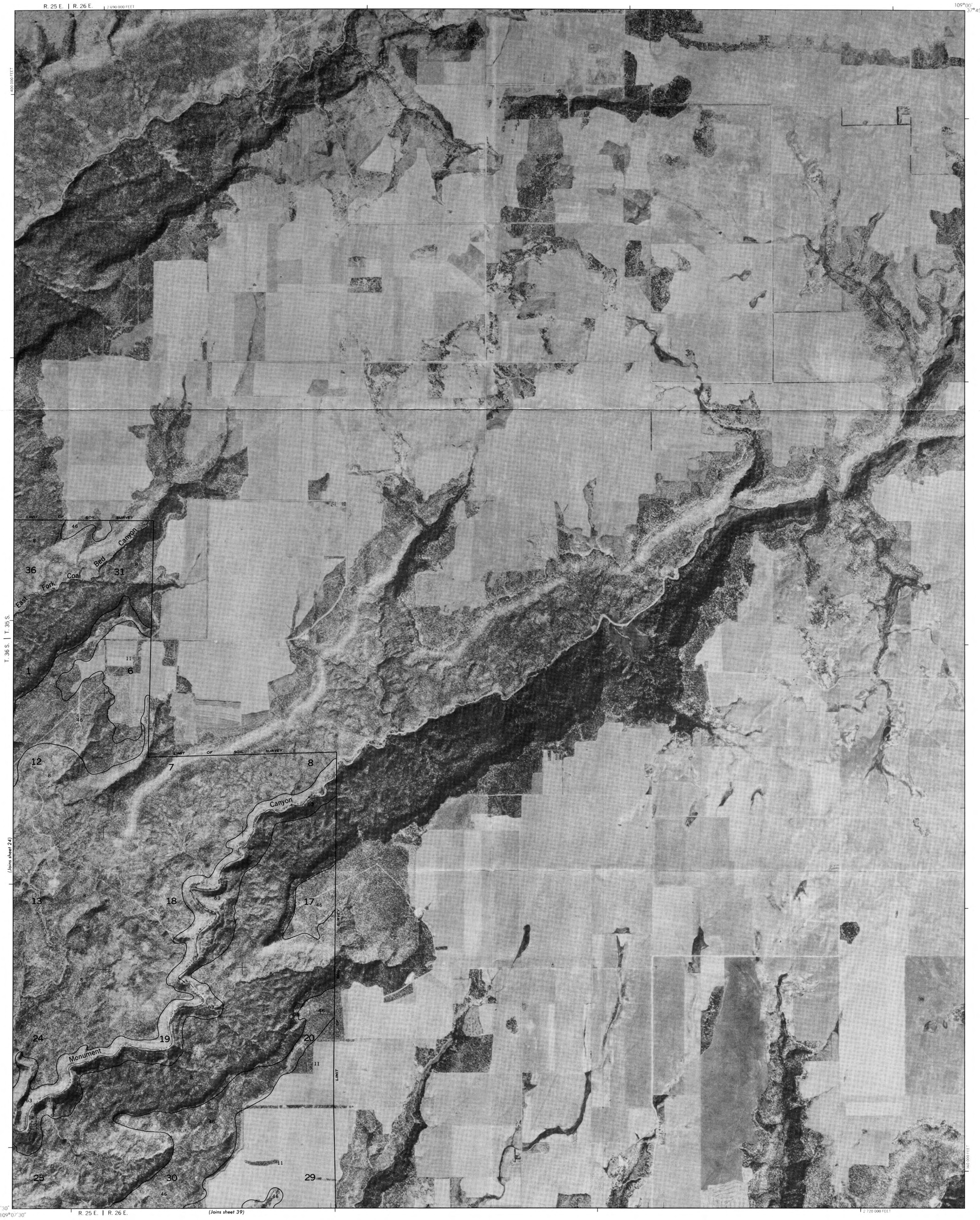
SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 23

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 24

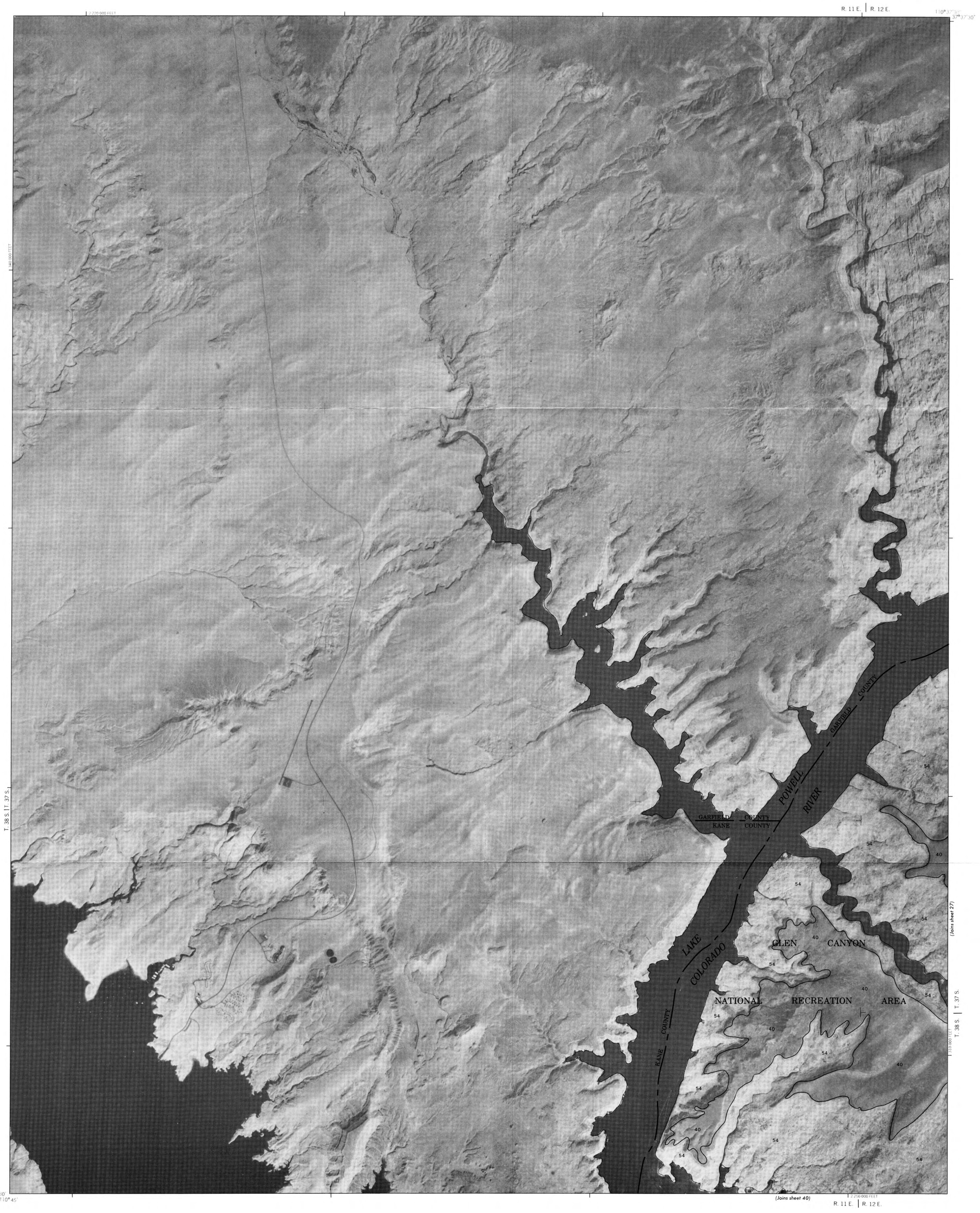


This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 25



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 26

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 27

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

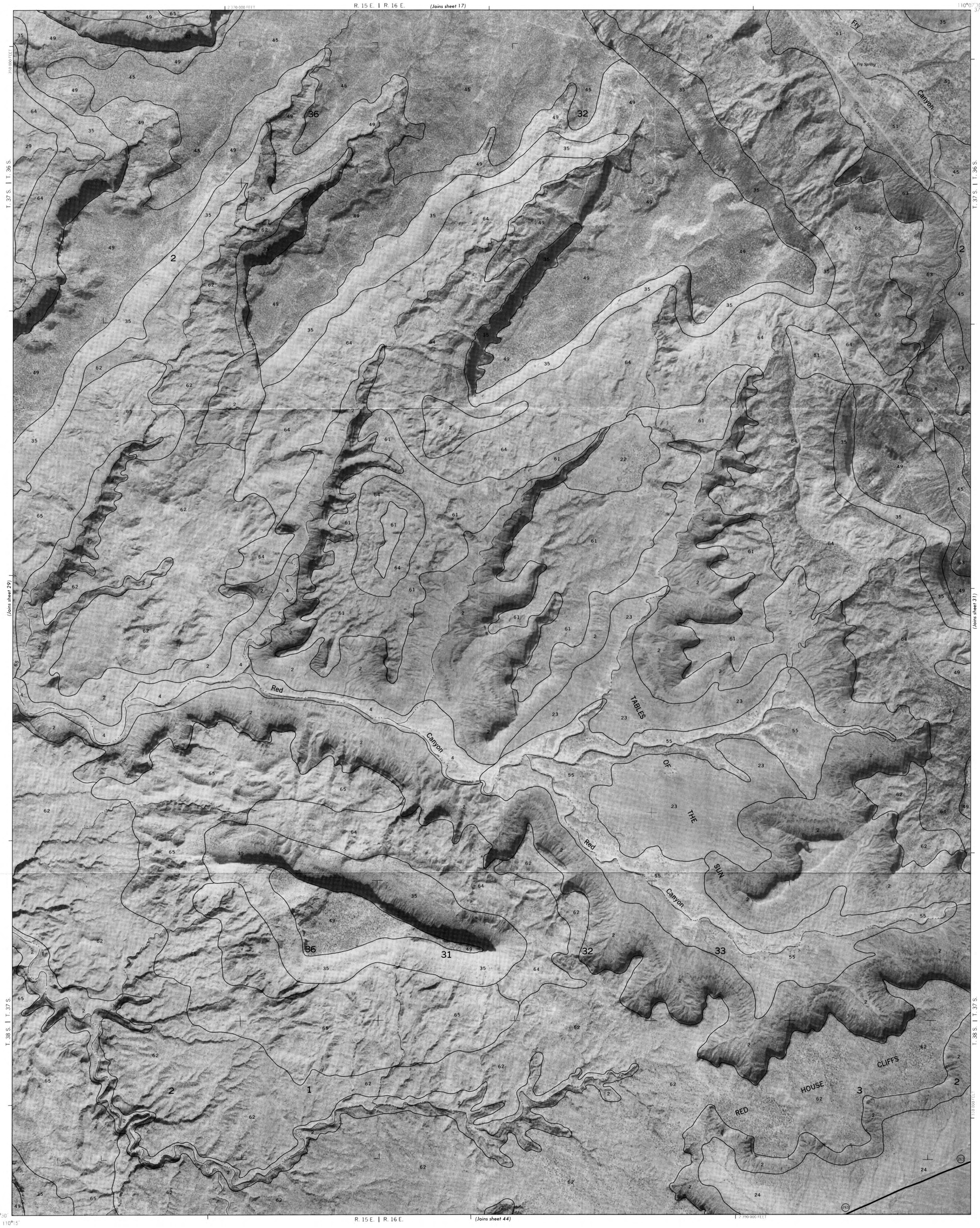
SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 28

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 29



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 30

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 31

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 32

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 33

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 34

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 35

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 36

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 37

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

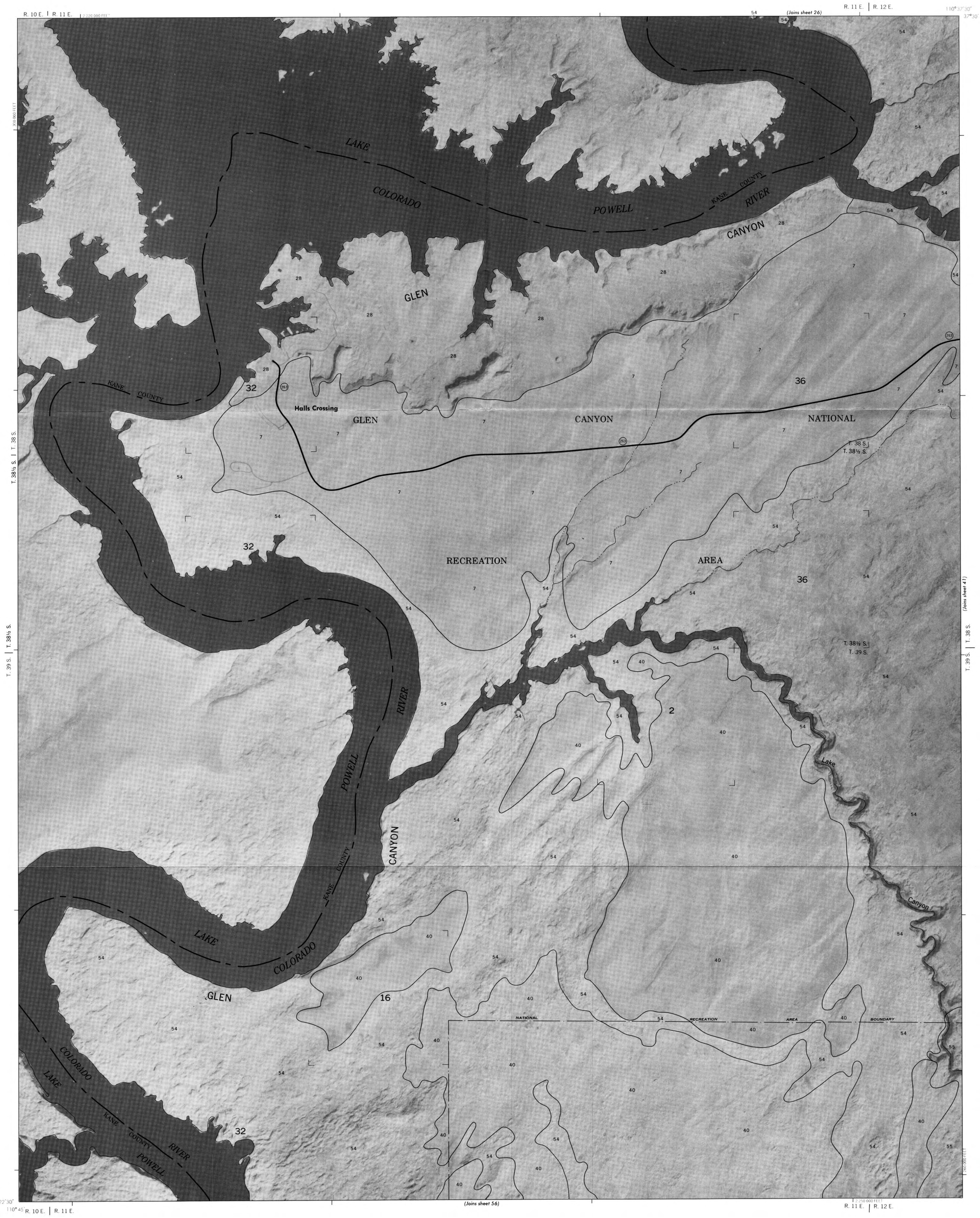
SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 38

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 39

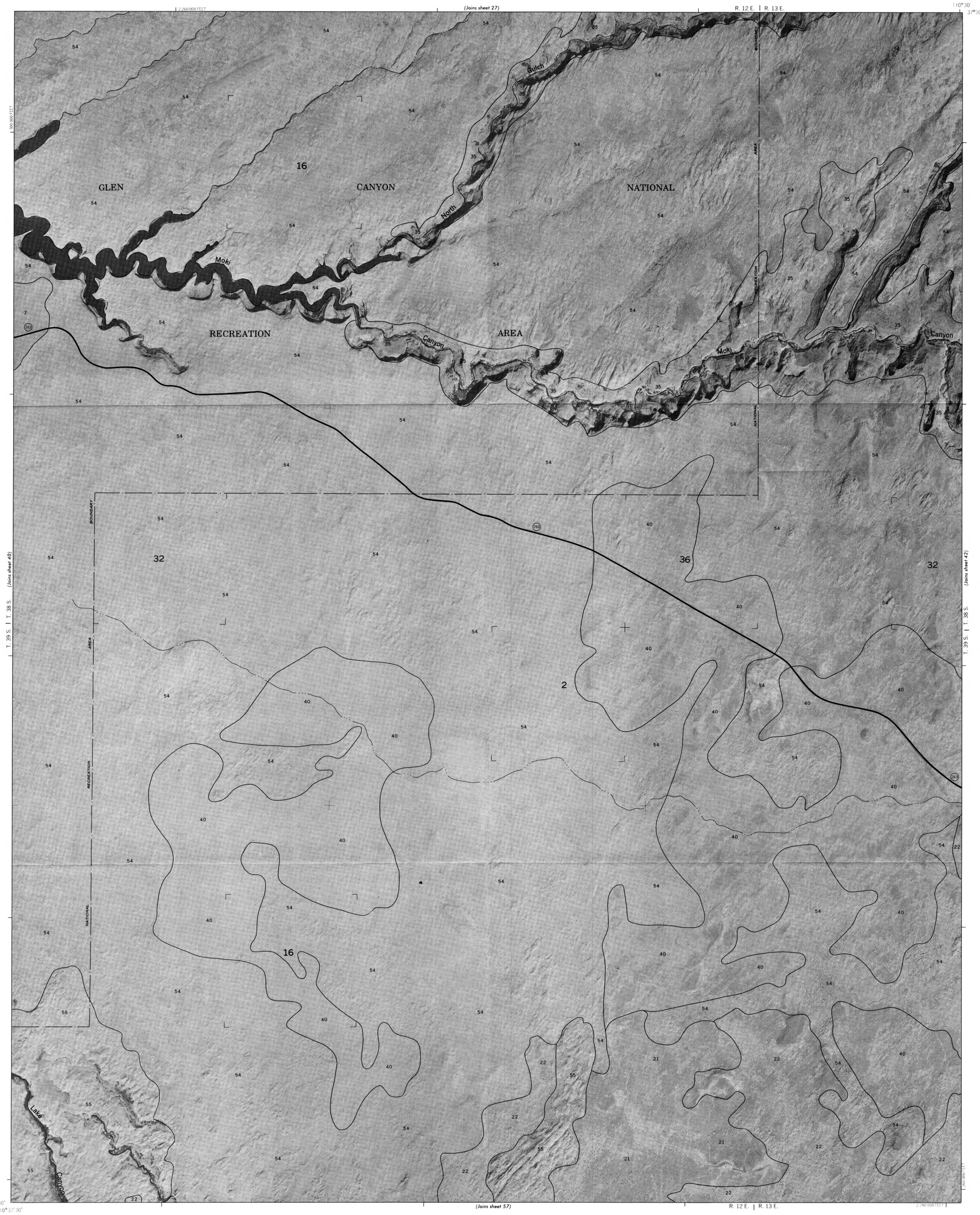


This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 40



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 41

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 42

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

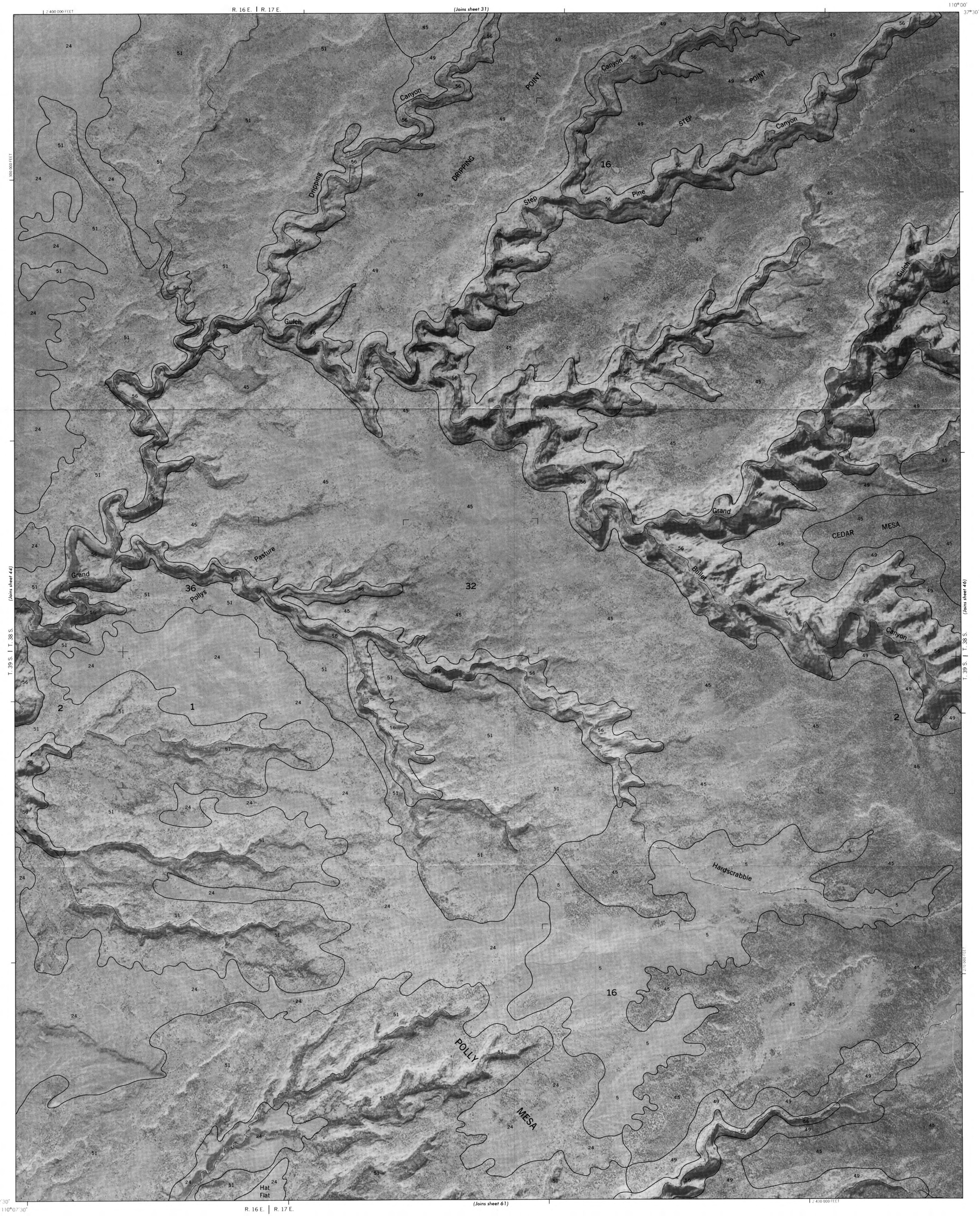
SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 43

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 44



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 45

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 46

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 47

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the, U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 48

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

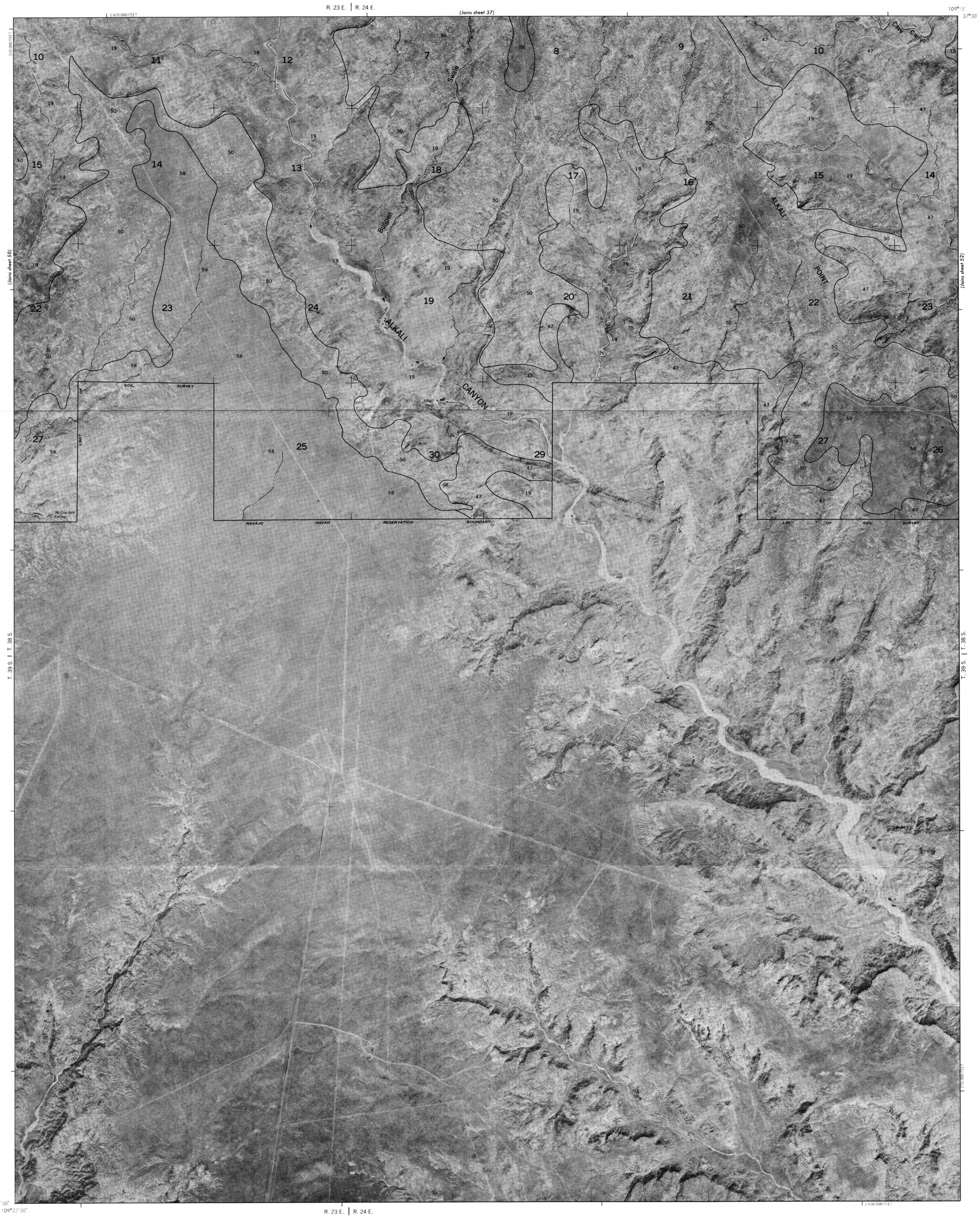
SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 49

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 50



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 51

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 52

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

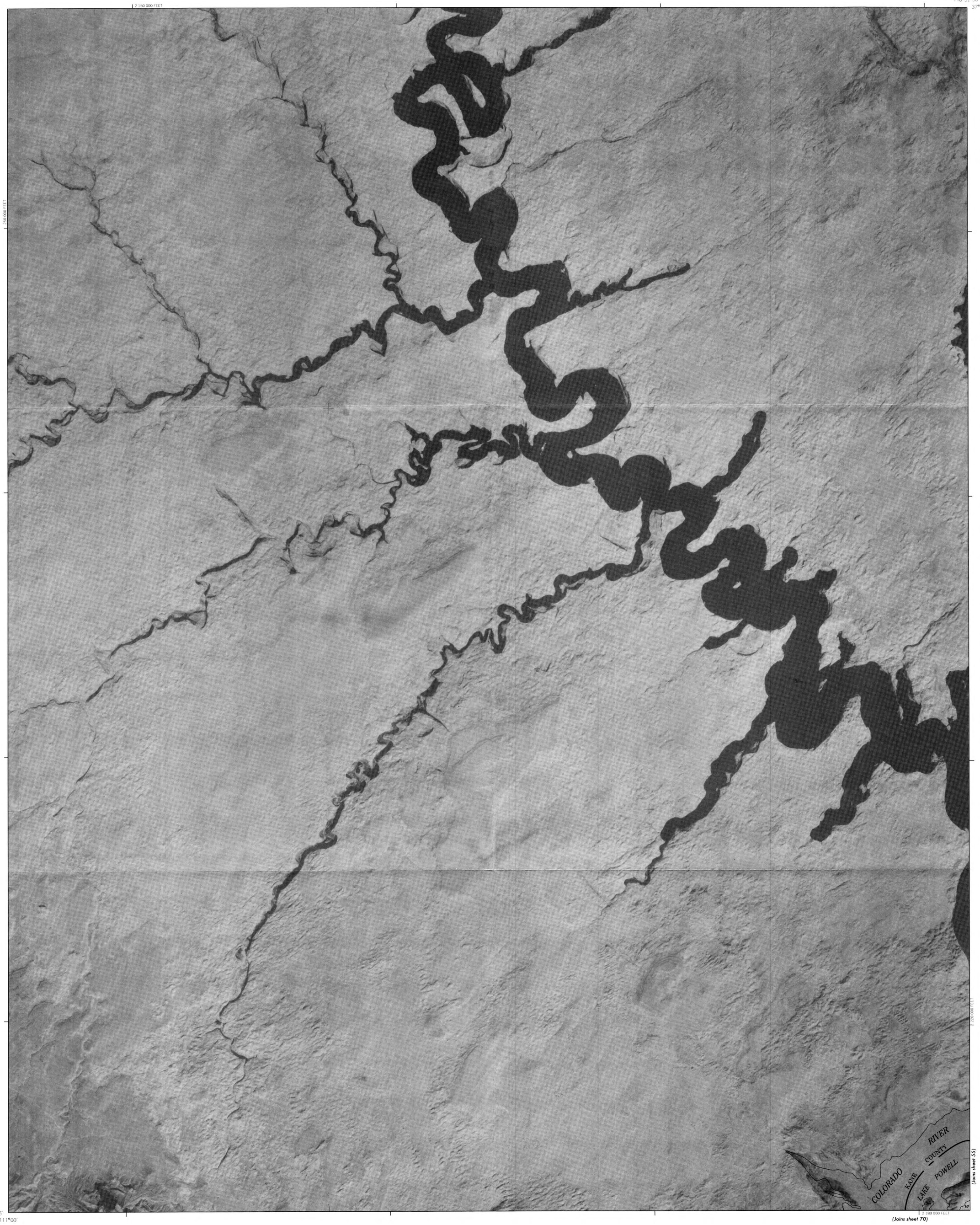
SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 53

2 150 000 FEET

250 000 FEET

110°52'30"

37°22'30"



250 000 FEET

(Joins sheet 55)

37°15'

111°00'

2 180 000 FEET

(Joins sheet 70)

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

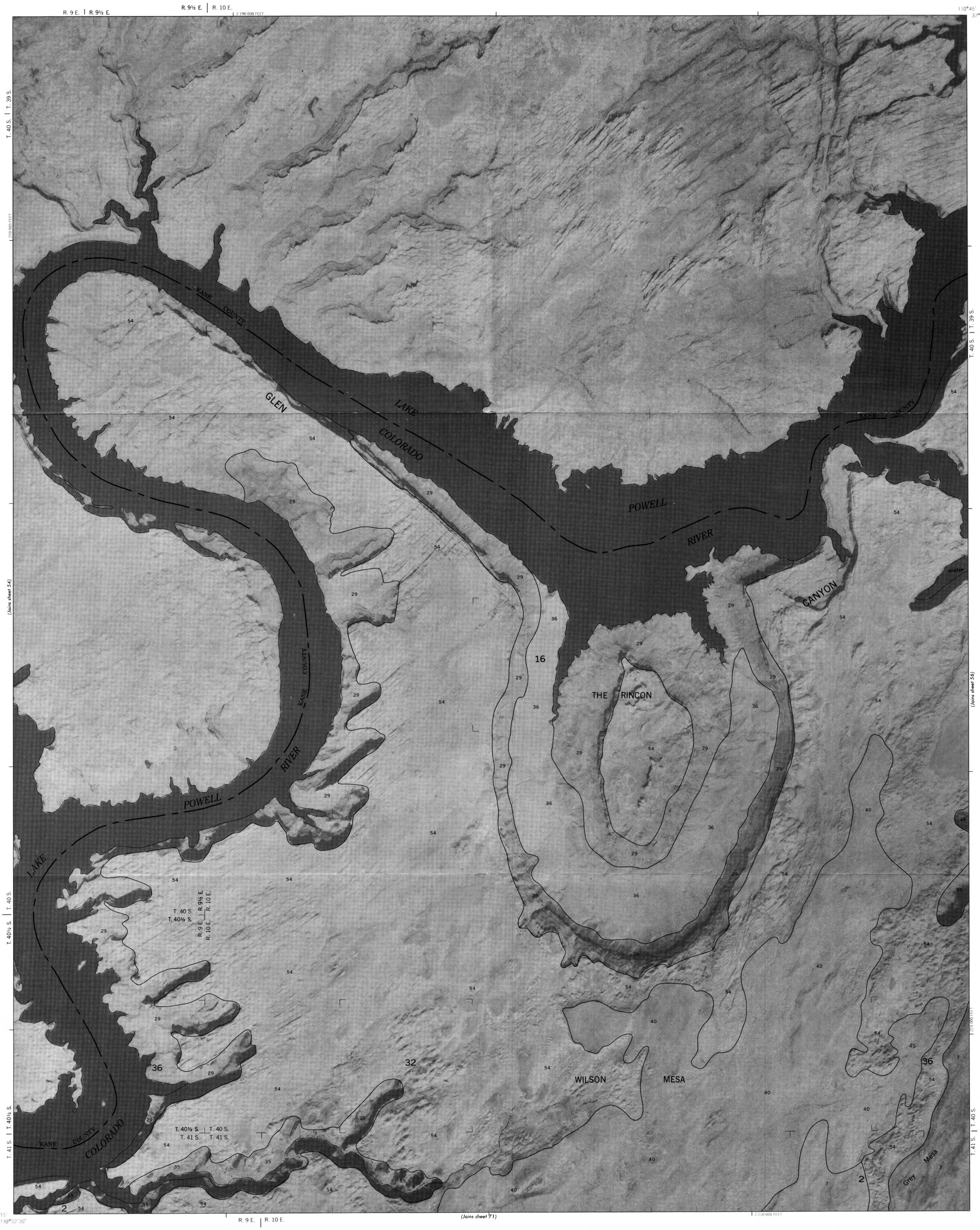
1 3/4 1/2 1/4 0 1 2 MILES

1 0.5 0 1 2 KILOMETERS

SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 54



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 55

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 56

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 57

2 300 000 FEET (Joins sheet 42) R. 13 E. | R. 14 E. 110°22'30" 37°22'30"

T. 40 S. | T. 39 S. 250 000 FEET

T. 40 S. | T. 39 S.

(Joins sheet 59)

(Joins sheet 57)

Castle Creek
Rock Spring
Spring
Spring
Spring
Mikes Canyon
East Fork
Mikes Canyon
NATIONAL RECREATION AREA BOUNDARY
Mikes Canyon
NATIONAL RECREATION AREA BOUNDARY
MESA
GLEN CANYON NATIONAL RECREATION AREA
SAN JUAN RIVER
SOIL SURVEY LIMIT OF
SAN JUAN RIVER
NATIONAL NAVAJO RECREATION INDIAN AREA RESERVATION
POWELL LAKE
BOUNDARY BOUNDARY
RED HOUSE CLIFFS

T. 41 S. | T. 40 S.

37°15' 110°30'

R. 13 E. | R. 14 E. 2 320 000 FEET

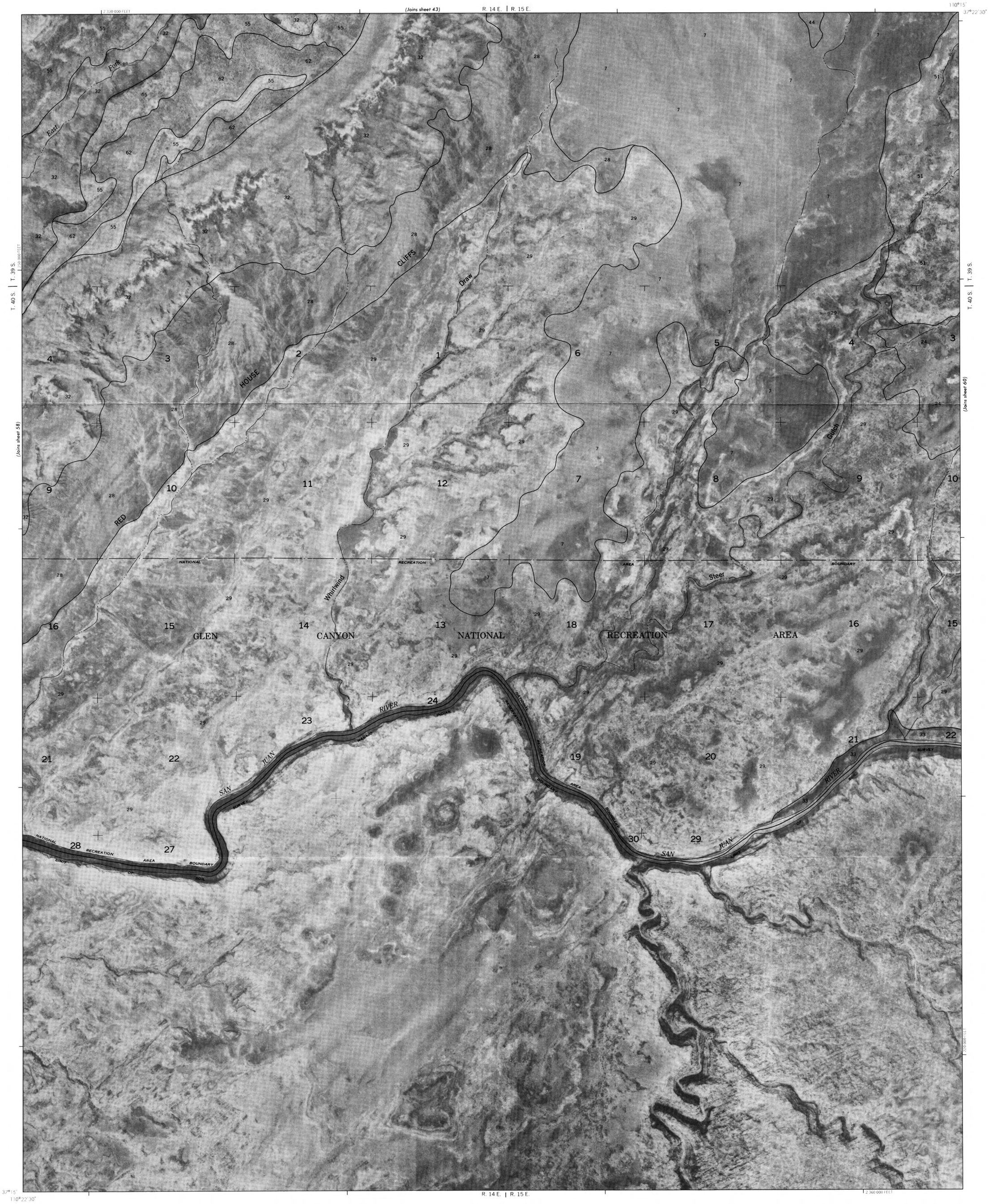
250 000 FEET

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 58



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 59

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 1 2 KILOMETERS
SCALE 1:24000

N

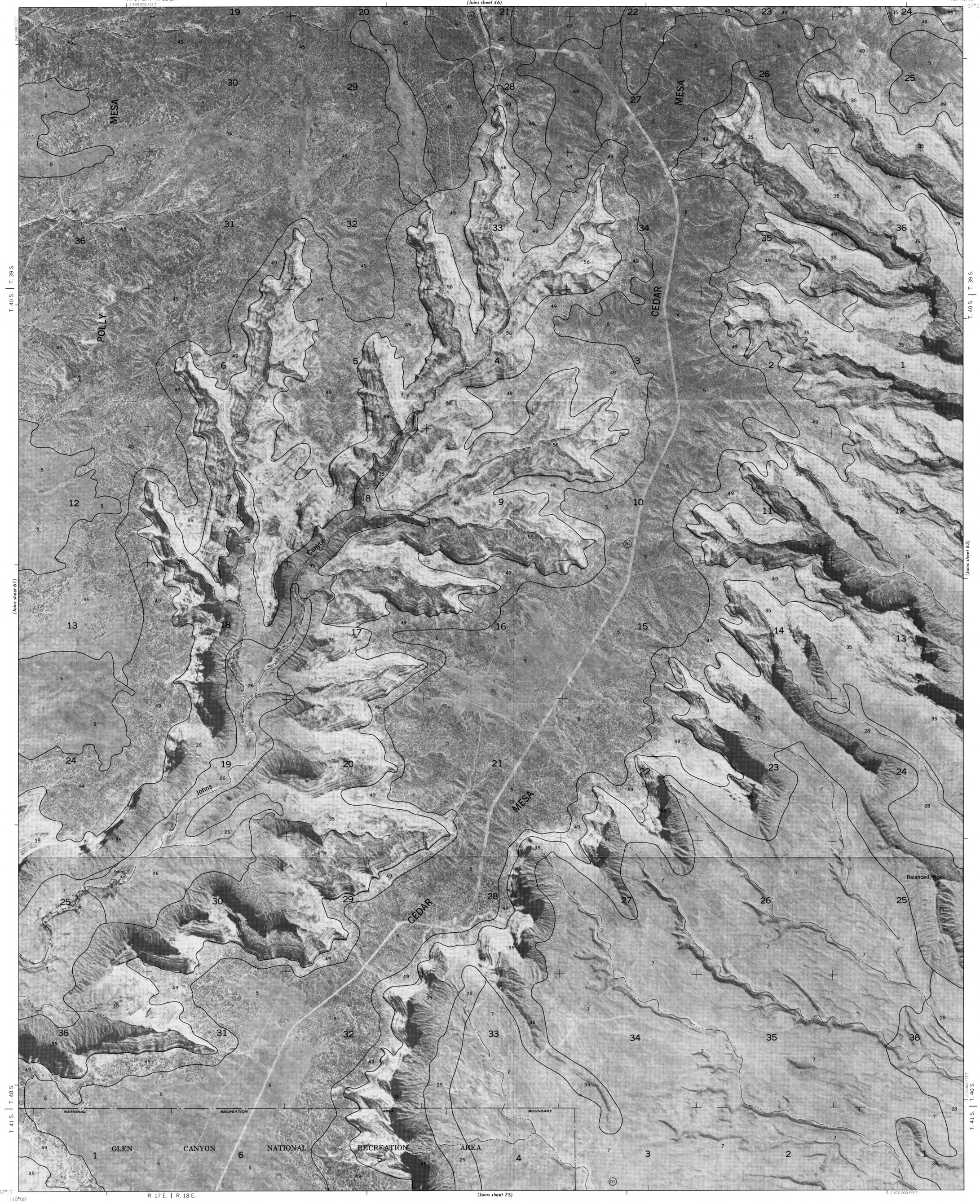
SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 60

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 61



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 62

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NO. 63
SOIL SURVEY OF SAN JUAN COUNTY, UTAH, CENTRAL PART

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

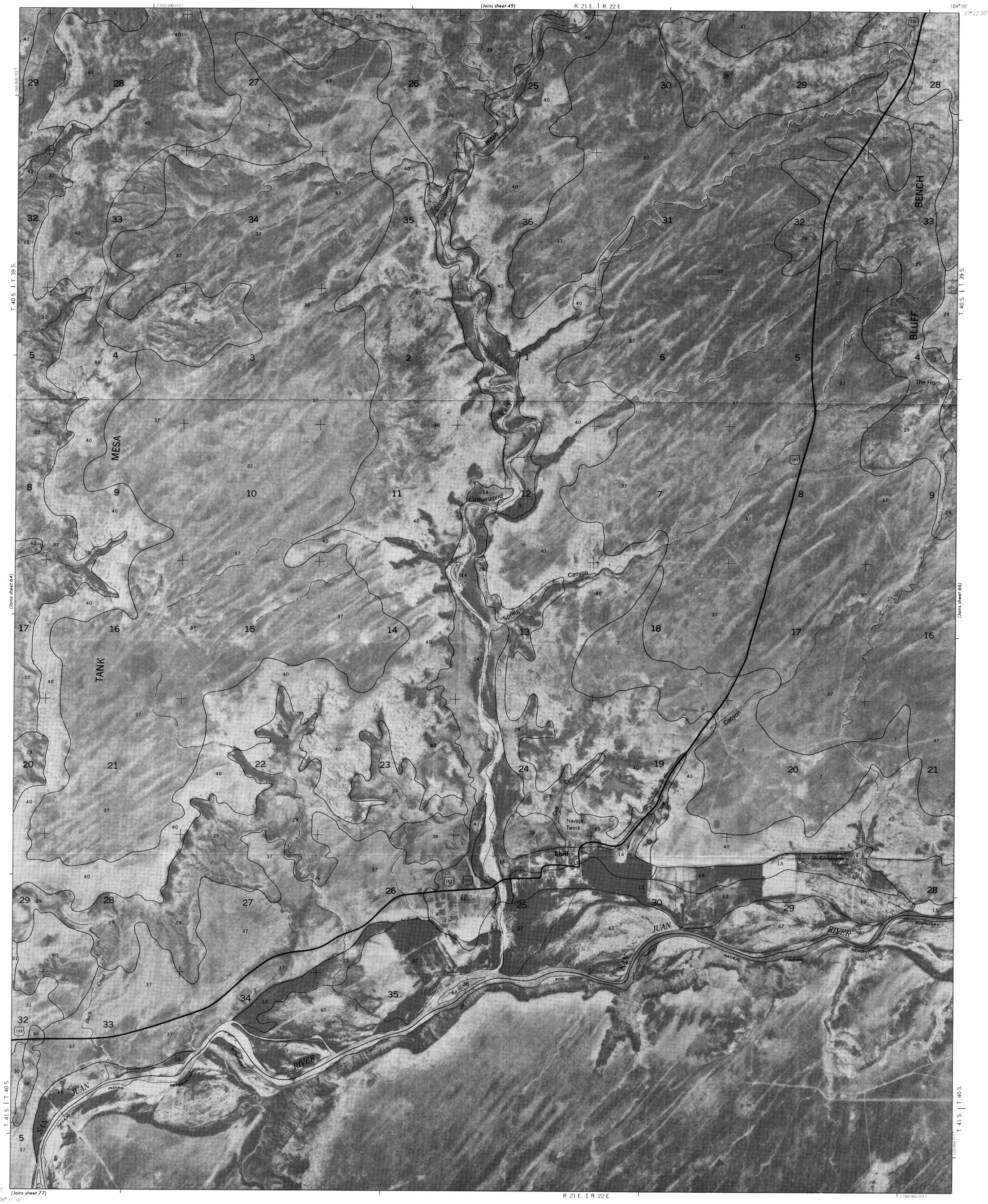
SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 63

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 64

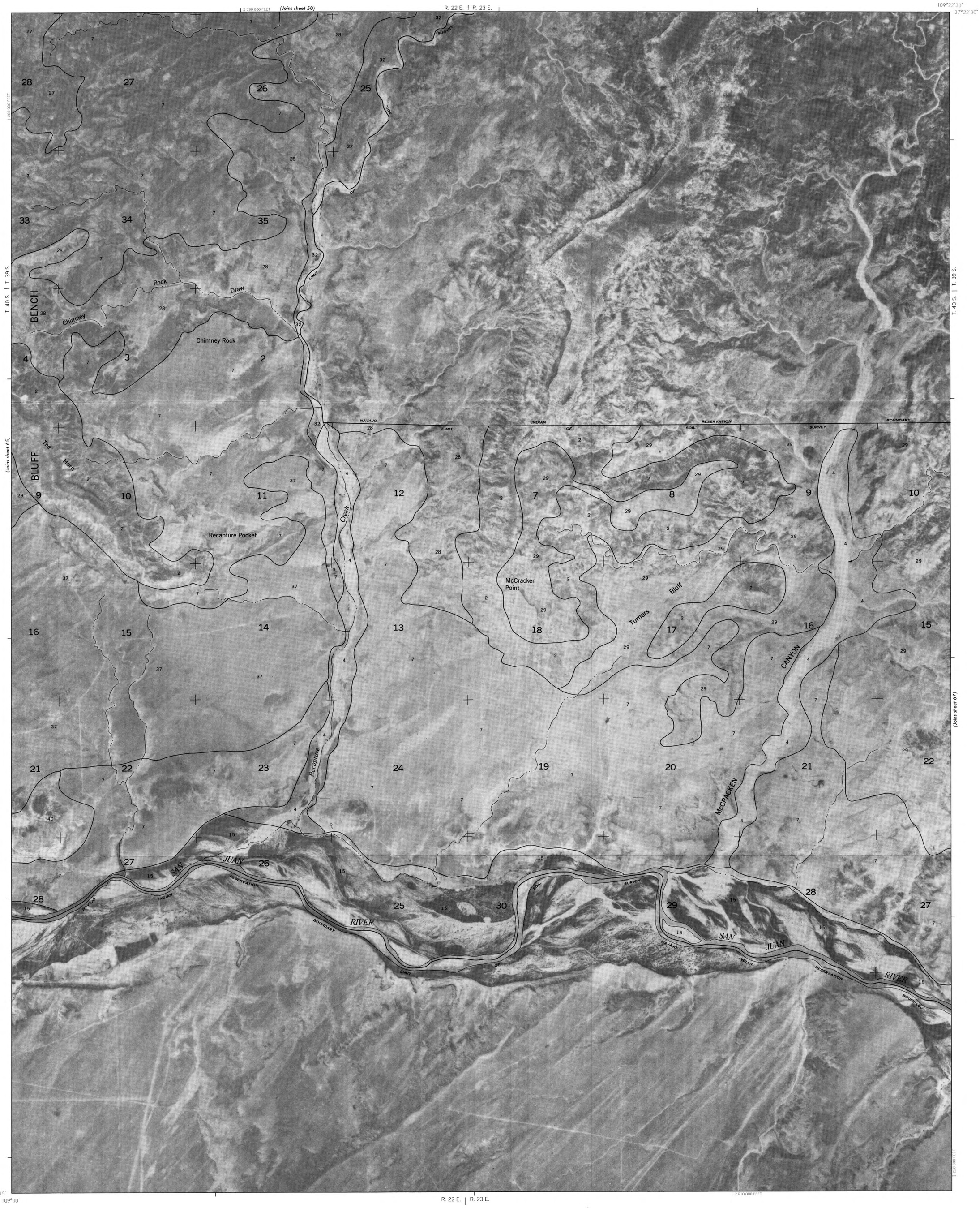


This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 65

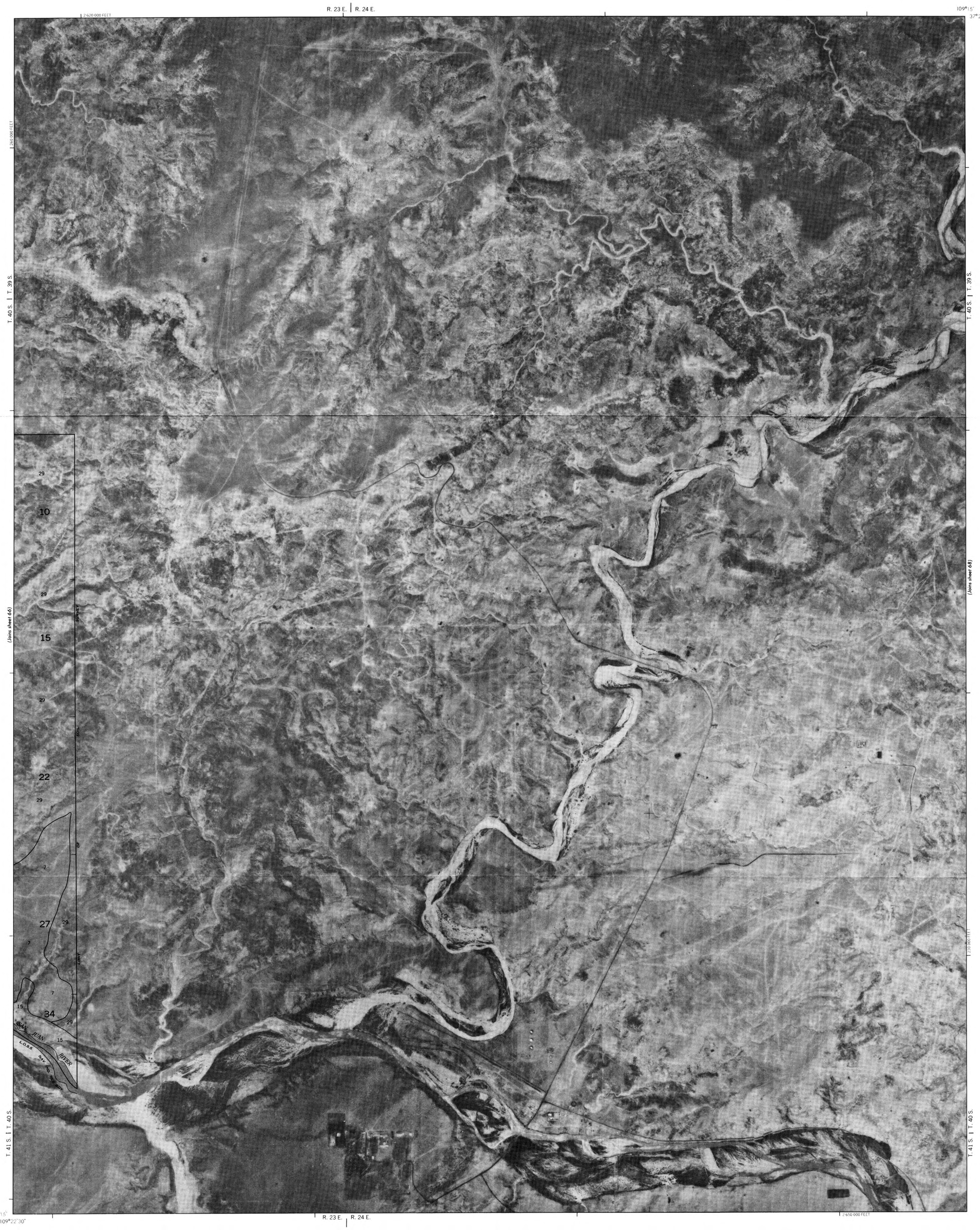


This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 66

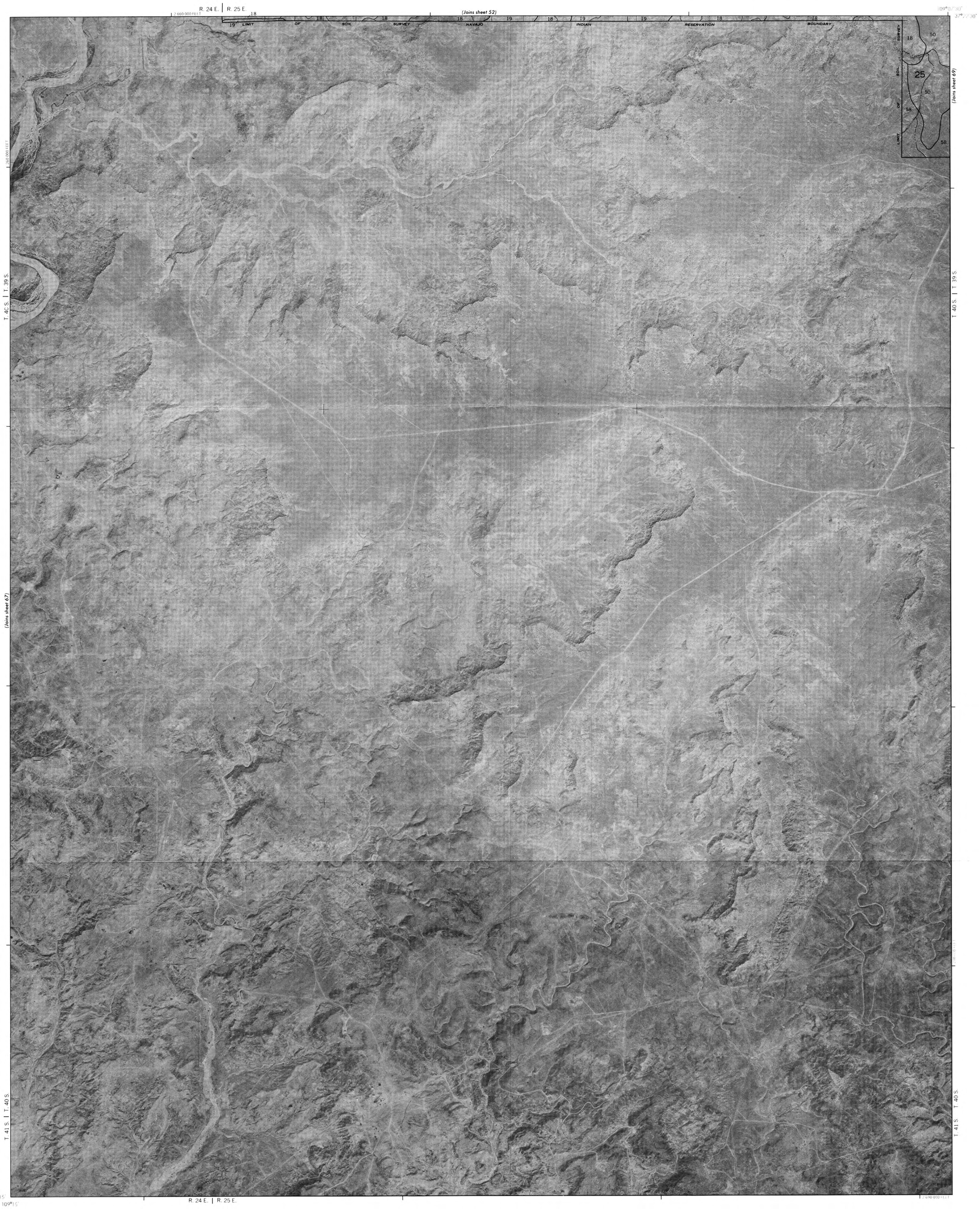


This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 67



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

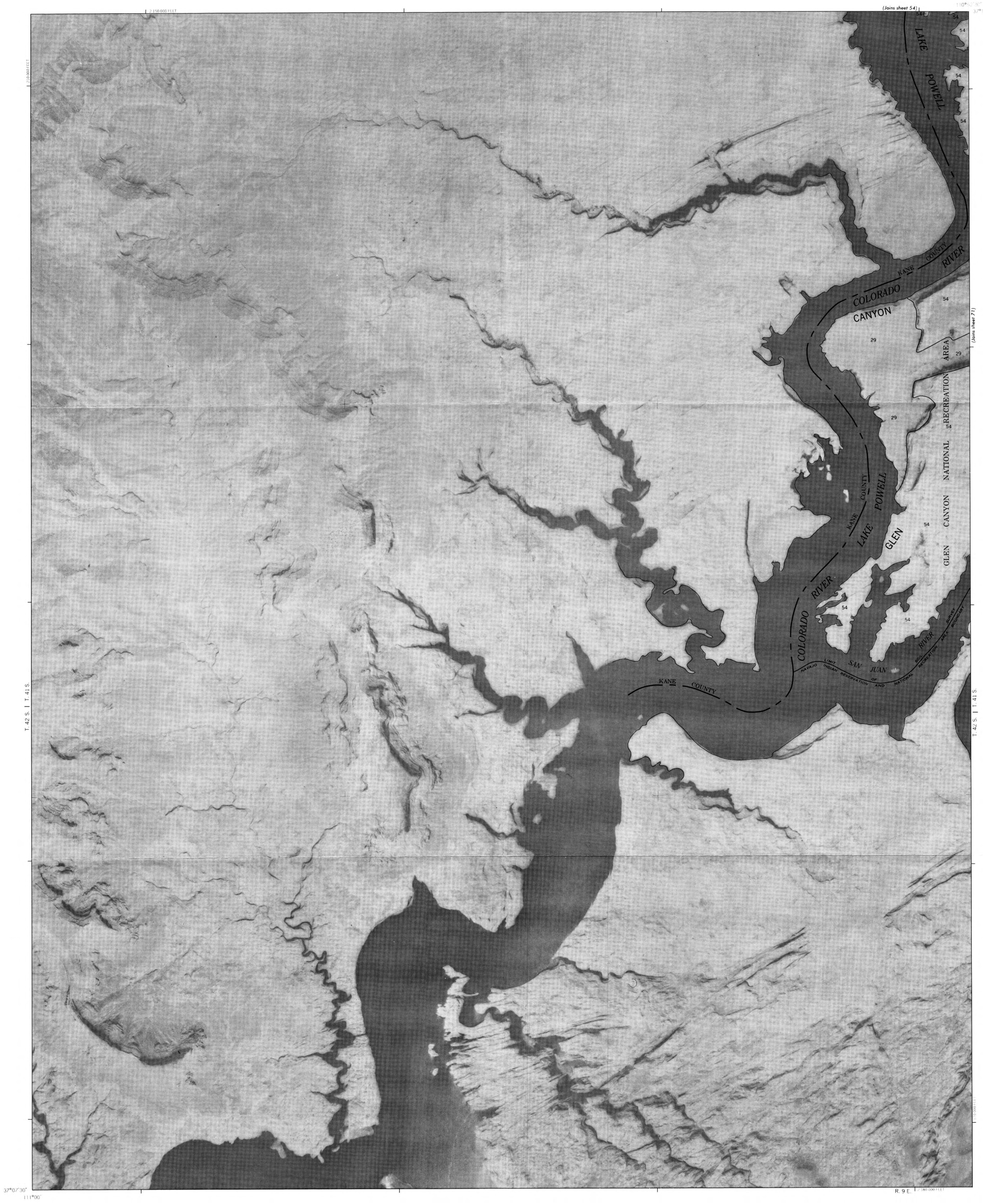
SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 68

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 69



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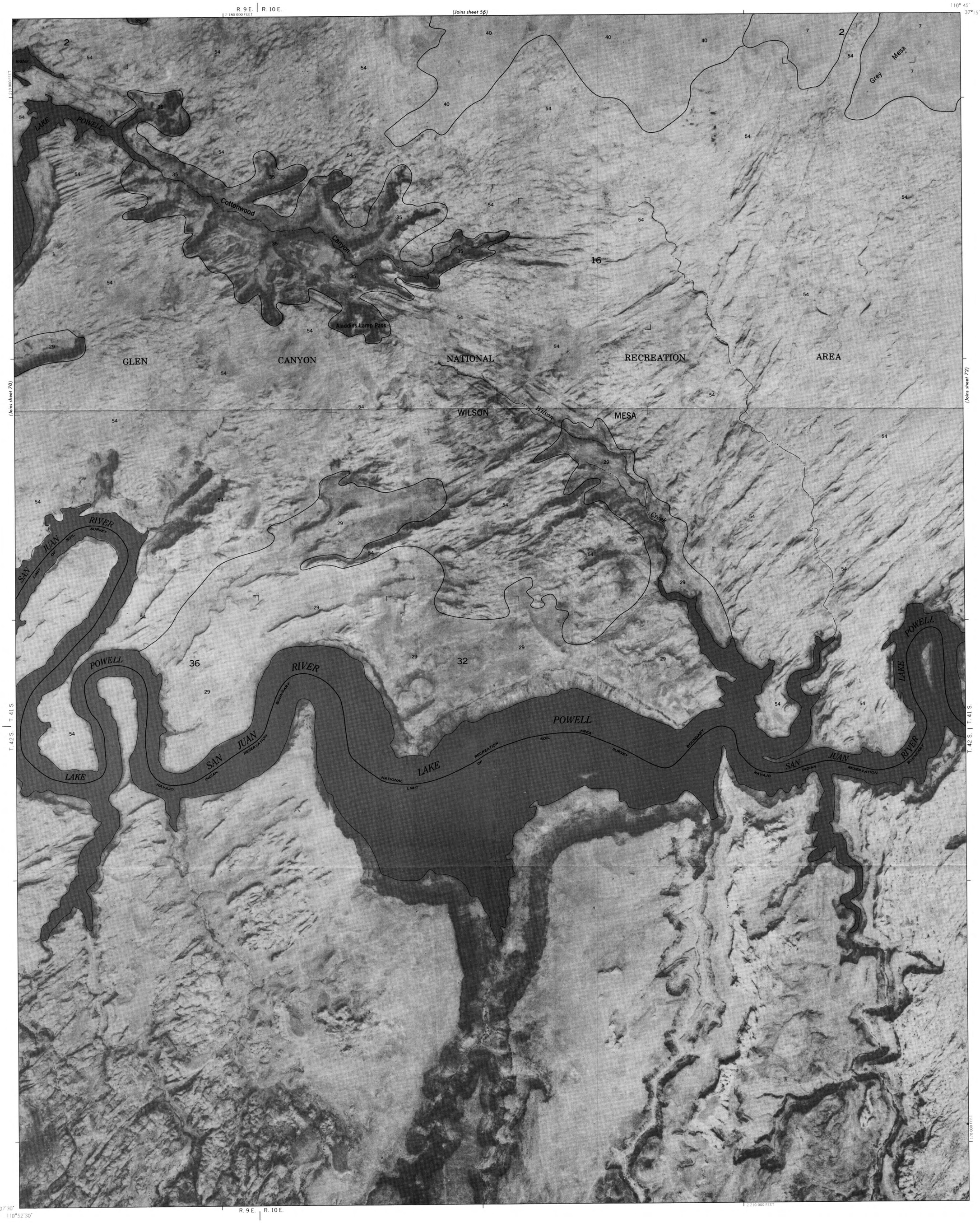
1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 70

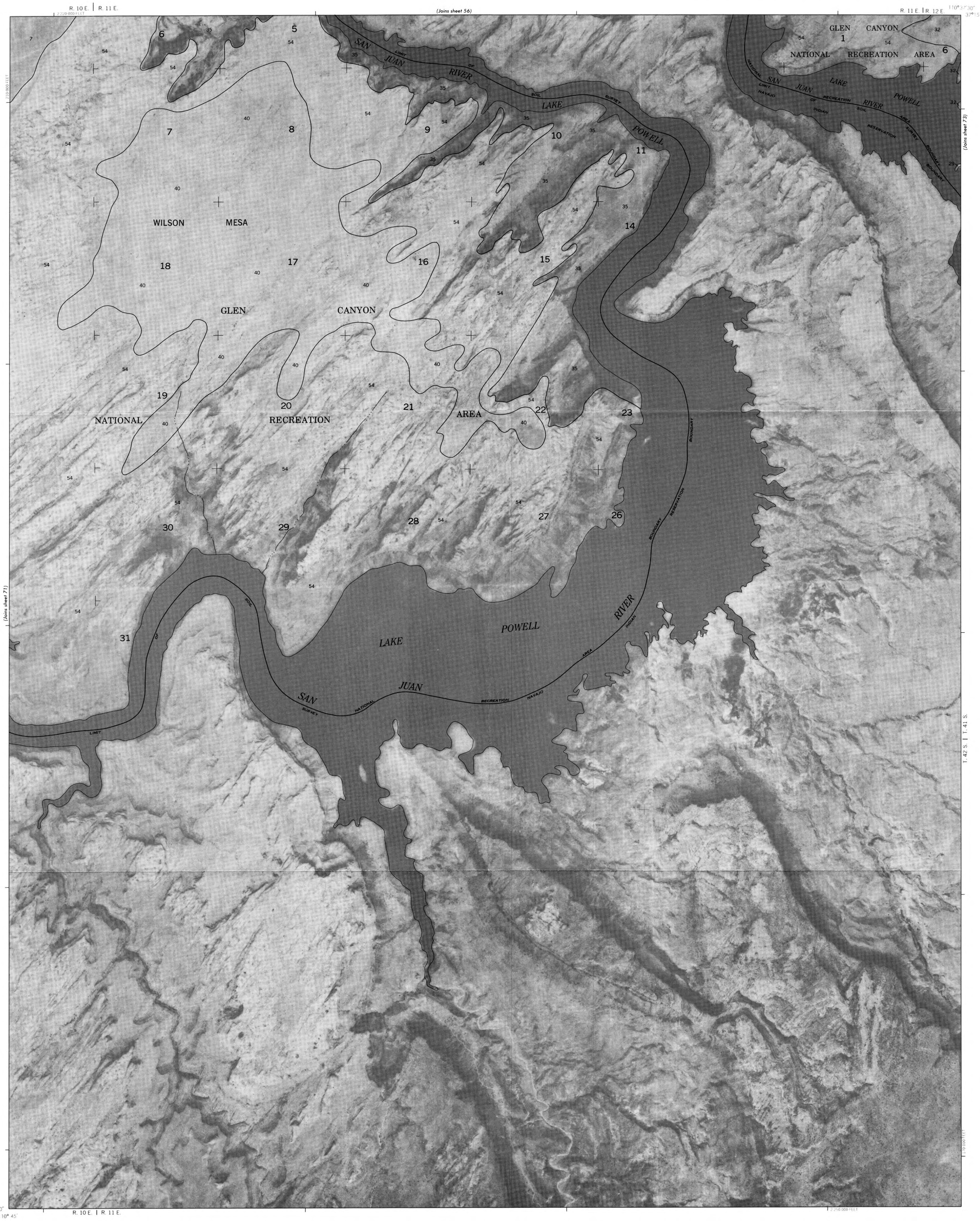


This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 71



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 72

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 73

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0 5 0 1 2 KILOMETERS
SCALE 1:24000

N

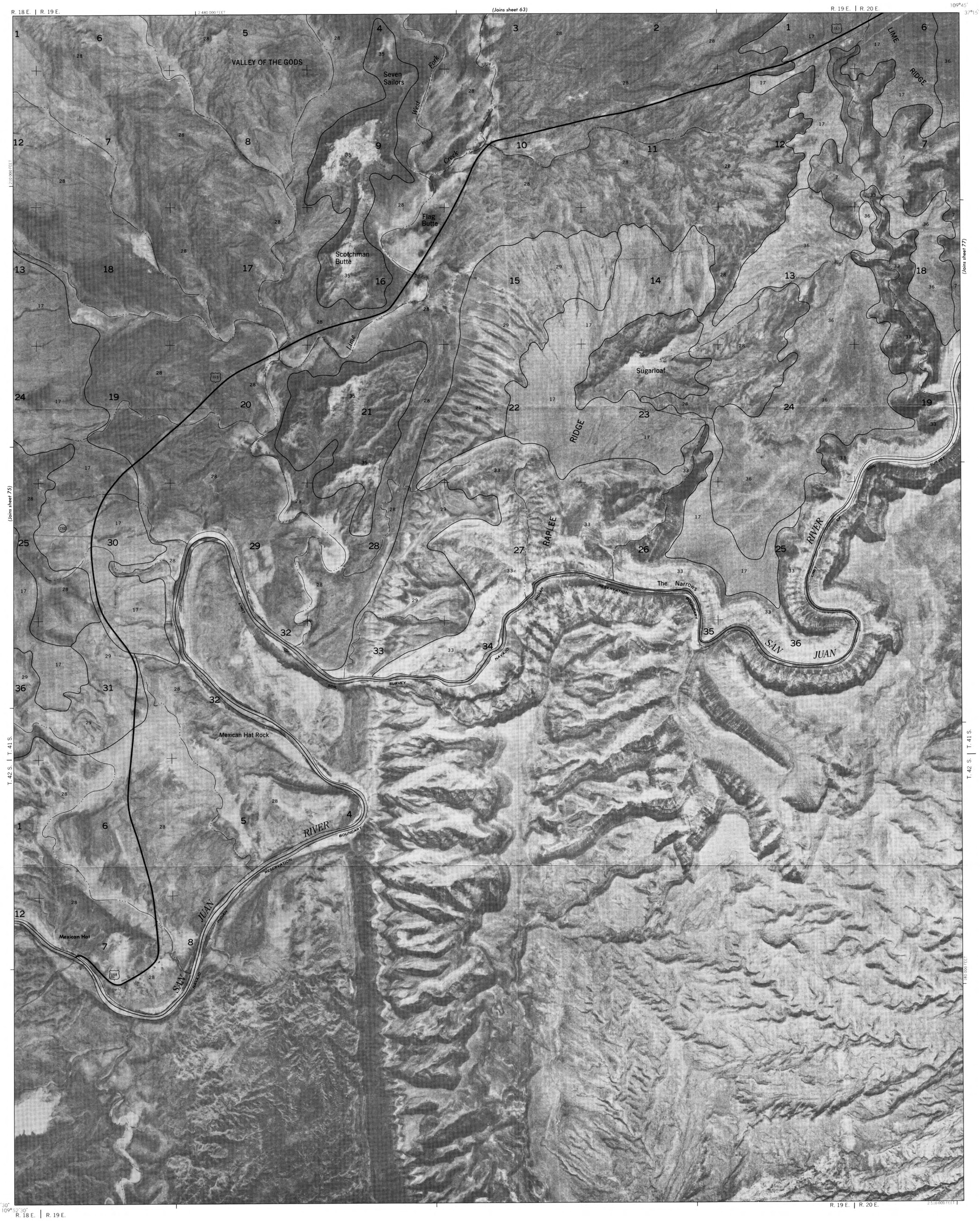
SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 74

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 75



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1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 76

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1974 - 1976 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 2 MILES
1 0.5 0 1 2 KILOMETERS
SCALE 1:24000

N

SAN JUAN COUNTY, UTAH, CENTRAL PART NO. 77